Lovell I can't see a thing.

Aldrin Alright, pitch down a little more.

CAP COM That sounds like a typical Navy navigator.

Aldrin Boy, look at that beautiful water.

Lovell Well, that's the Cape, I can see that.

Aldrin Sure would like to do a little skin-diving there. Looks like there are a few clouds over the Cape too.

Lovell Looks like we launched on the right day.

CAP COM Gemini 12, Houston. You ought to have some pretty good cloud cover in the 16-1 area.

Lovell Roger.

Aldrin Yaw right a little.

CAP COM You might try to get a picture of that if you can.

END OF TAPE

....try to get a picture of that if you can.

ALDRIN Are you logging all of these in?

LOVELL Yes I am writing them all down.

ALDRIN That one must be 45.

LOVELL That is why we're staying under it.

There is a shot to the right there of the sun.

ALDRIN I know it but these clouds are .....

FD Bermuda remote.

ALDRIN I don't think that's much.

BDA .....mainland

SC Repress

BDA See you next pass.

ALDRIN Do you suppose these are the clouds he is talking about?

LOVELL I don't know, look down there there is a big 16-1 visible.....

ALDRIN Yes, I can.....

LOVELL Yes, this must be it right here.

.....

ALDRIN Move forward I am taking your picture.

HOU You're about over 16-1 Gemini 12.

SC Okay there is a lot of clouds out here.

Roger we can see a lot of clouds.

ALDRIN Ready to smile.

LOVELL Yes.

ALDRIN Affirm.

LOVELL Did you get the right setting.

ALDRIN What are you guessing?

LOVELL 5/6 maybe.

ALDRIN .....(garble)

ALDRIN Okay, smile.

LOVELL Okay.
You're really going to have to fix me this time because I can't see a thing Buzz. It's very hard for me to align because - my tie-down slipped up

ALDRIN Yes

LOVELL I'm having a hard time seeing out of the ....

ALDRIN Maybe we ought to make one more trip beforehand.

HOU Gemini 12, Houston. One minute to LOS. We'd like to have you do the next exercise period over Carnarvon if possible.

SC Roger, can you give us a GET?

HOU Standby. We'll give it to you over Canary.

SC I got 50 showing on here, I might as well (garble) until it's all over.

LOVELL Yes.

ALDRIN I don't know whether we got any pictures with this stuff on the back of us.

LOVELL You used up what's in the camera.

LOVELL Yea it's off.

ALDRIN Well, let's take a picture of each other then.

LOVELL I don't know if it's all gone or not but let it run out Buzz.

ALDRIN It is still running, (garble)

LOVELL Okay, it's 35 minutes do you want to start bringing that camera in and get it all squared away. Cut the (garble) off.

ALDRIN I can hear it still running.

LOVELL Yea, I know, but it will run forever. I just turned it off.

Gemini Control Houston, 21 hours now into the flight of Gemini 12. We are out of range with Bermuda. You were just tuned into a lengthy conversation between Jim Lovell aboard Gemini 12 and Cap Com Bill Anders here in Mission Control. Anders did advise Gemini 12 that if they had a time problem during their second night pass with regard to the S-13, that if they choose to drop any star or star field Algol would be the likely choice. During this pass, they will be shooting with the prism, instead of the grating. The grating gives us the heighth dispersion spectra which - where we might hope to see some details in the

spectra the prism gives a shorter spectra but it also allows us to see the much fainter stars than can be seen otherwise. Surgeon advises us that heart rates are remaining very steady in the high 70 range. Standing by for acquisition with Canary. This is Gemini Control Ho ston.

END OF TAPE

S/C ... I flipped your circuit breaker.

LOVELL What's your suit pressure?

ALDRIN Pressure's good.

CYI Okay, we have both vehicles. TM solid. Both are go.

HOU Roger.

CYI Gemini 12, Canary Cap Com.

S/C Roger, Canarys. How do you read us?

CYI Read you loud and clear.

Okay. Your Carnarvon acquisition will be 21 +38.

S/C Roger. 21 + 38.

CYI That's affirmative. We are standing by.

S/C Roger.

LOVELL Look at that old ... (garbled) at the workstation there.

ALDRIN Yeah. It looks just like the one that was there before.

LOVELL Okay, let's leave here, give up on SGFW.

ALDRIN Okay.

LOVELL Give up on SGF?

ALDRIN Yes, believe you're right.

LOVELL You're out of film now.

ALDRIN Yep. Here's Africa coming up.

LOVELL It come?

ALDRIN Yeah.

ALDRIN The ... out.

HOU Canary,Houston Flight.

CYI Go ahead, Flight.

HOU Send us a Gemini main.

ALDRIN There's no sign that it would effect ...

LOVELL Roger.

ALDRIN Wonder why the pressure is dropping off.

Yeah, pressure gauge is ...

LOVELL What pressure is that?

ALDRIN O_2.

LOVELL Okay on seven. Have you got the heater on?

ALDRIN No.

S/C Canary, this is 12.

CYI Go ahead, 12.

S/C Roger. We just saw a drop in O_2 psia slightly.

Did you get that on the ground?

CYI Okay. Its bouncing a little bit, but it is holding pretty steady down here.

S/C Okay. It's over that 700 now, but it bottomed down to about 400 telemetry and then 600 for a while.

CYI Okay. We haven't noticed any big fluctuations in it. We'll keep an eye on it for you.

S/C Okay. It might just be a gauge problem.

ALDRIN Okay, let me get the camera in.

HOU Canary, send us a Gemini A, please.

ALDRIN Camera is off.

LOVELL Roger. I'll direct the command to stop these rates.

ALDRIN ... both on the seat.

LOVELL Watch it. Watch it.

ALDRIN Okay.

LOVELL Get your foot out of the way.

Get your foot out of the way.

ALDRIN Okay.

LOVELL You're on the switches to the fuel cells.

ALDRIN I don't want to hit those.

LOVELL I can see three of them. Can you look down and see the other three of them on?

ALDRIN The back switches?

LOVELL Yes.

ALDRIN They're on.

CYI Houston Flight, Canary Cap Com.

HOU Go ahead.

CYI Okay, that O_2 is holding real steady at 836.

HOU 836?

CYI Right.

LOVELL Now why don't you check that Delta P gauge? Can you reach around there and do that?

ALDRIN Check it for what?

LOVELL The Delta P gauge.

ALDRIN I can't reach around there now.

LOVELL You've got a problem.

ALDRIN No I can't.

In the first place, you let it slip.

LOVELL Stand there and tighten up on ..now wait.

ALDRIN Boy, I don't know if I'll be able to get these straps on
/.. the way this suit is.

LOVELL (Garbled)
If you can, get in the same position you were in before. And I'll put the strap in the spot the same spot it was before.

CYI Gemini 12, Canary Cap Com. About a minute to LOS. That O_2 pressure is holding real steady now down here.

S/C Okay, Canary, thank you.

CYI Houston Flight, Canary Cap Com. I've had LOS both vehicles and both were go.

HOU Roger.

This is Gemini Control. We've just had LOS with Canary and we're picking up now at Kano. We should start our second night pass after acquisition at Kano and before Tananarive.

S/C (garbled)

KNO Kano is remote and we have acquisition.

HOU Gemini 12, Houston Cap Com, through Kano and standing by.

S/C Roger.

HOU With reference to your exercises over Carnarvon, it'll conflict with S-13, so do your exercise on your schedule. We'll get it off the tape.

S/C Roger.

LOVELL Okay, looks like we're set for S-13 through Kano.

END OF TAPE

S/C ...at lunch time.

S/C ...in the box, does it have a tendency to go sideways?

S/C Let me look and see.

S/C ...still taking pictures of the sunrise and..

HOU Roger.

S/C ...on our back.

S/C What?

S/C I say we are on our back.

Aldrin Ok.

Lovell See the horizon?

Aldrin Looks like the one behind us

Lovell Maybe...

Aldrin Yeah

Aldrin You sure it isn't a Lockheed bolt?

Lovell May be

Lovell (Garbled) there on our ....right.

Aldrin Right?

Lovell Right. ....

Aldrin Pick up a feeler here.

Lovell That's beginning to....right now.

I hope you....did you?

Aldrin Yeah. It takes me a while to...adapter...out here.

Lovell Yeah, I've been out of the sun.

Aldrin Yeah. Its like coming in out of a snowstorm.

Lovell Hey, there's....

Aldrin I'm beginning to....some now. Man, I'll tell you, that's hard to see.

Lovell Ok, you're coming up on...in a few feet

(Several sentences of garbled VOX transmission)

Lovell ...I think I am....I can barely see out buzz, I can barely see down.

Aldrin (Garbled)

Aldrin Ok, it should be that star that's coming into view now.

CAP COM 30 seconds to KAno LOS.

KNO Kano has LOS.

Gemini Control Houston 21 hours 18 minutes into the Flight of Gemini 12 now. We've just had loss of signal with Kano. The next station to acquire will be Tananarive, this will be at 21 hours, 22 minutes, 37 seconds into the Flight of Gemini 12. The Gemini 12 spacecraft is now in its 2nd night pass during this standup EVA. At 21 hours, 18 minutes, 40 seconds, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston at 21 hours, 22 minutes now into the flight of Gemini 12. The Gemini 12 crew, Jim Lovell and Buzz Aldrin, now are involved in their second night pass portion of the standup EVA. We expect acquisition with Tananarive in a matter of a few seconds now and we're standing by for any conversation which might transpire during this acquisition or during this pass over Tananarive. This is Gemini Control standing by.

HOU	Gemini 12, Houston Cap Com through Tananarive and standing by.
S/C	Mark.
S/C	garbled
S/C	All right.
S/C	Stand by. Mark it.
S/C	You were right on, Buzz.
S/C	I'm not so sure the camera's on this time. I think it could stand a little moving, Buzz. ....I mean.
S/C	Stand by. Mark. Stand by for the next one. Tell me when you're ready.
S/C	All right.
S/C	Stand by. Mark.
S/C	Stand by. Mark it.
S/C	All right.
S/C	Stand by. Mark.

S/C It's going pretty well.

S/C Let me know when you're ready.

S/C All right.

S/C Stand by, Mark.

Got it?

S/C Okay.

S/C Okay, we'll be ..... in a second.

S/C Okay, we're going over to Canopus.

S/C On my mark.

S/C Okay.

S/C It's not very far from looking at them.

.....which way you go.

S/C What's that to the right? The bird, huh?

S/C Yeh, the bird wings of Velorum.

S/C garbled.

S/C ....approximately appears to be 29 degrees.

S/C read off the .... wing.

HOU Gemini 12, Houston Cap com. One minute to Tananarive LOS.

S/C Roger, Houston. I have the voice transcript two hours now, going remote.

HOU Roger, understand.

TAN Tananarive LOS.

Gemini Control Houston, 21 hours, 30 minutes into the

flight now. We've just had our LOS or Loss of Signal with Tananarive. Most of the conversation you've heard during this pass was concerned with the S-13, the UV Star Photography experiment. Our next acquisition will be at Carnarvon and that will be at 21 hours, 38 minutes, one second into the mission. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston 21 hours 38 minutes into the mission now. Just coming up on acquisition with Gemini 12 over Carnarvon. Standing by for it.

ALDRIN When I rub my gloves together there is static electricity between them.

LOVELL Stand by. Do you read?

ALDRIN ...phenomenon.

LOVELL Stand by. Mark. Stand by. Mark.

S/C ..load...pictures.

CRO 12, Carnarvon standing by.

S/C Roger.

S/C All set? Stand by-Mark.

S/C Stand by. Mark.

S/C Next one.

S/C Low as I can get it. Hold this under now.

S/C All right.

S/C Stand by. Mark.

S/C How is it going? Pretty well?

S/C Well, I ... a little bit left, but it ...

S/C That is okay.

S/C Stand by. Mark.

S/C ...give me another one. When you are ready.

HOU Carnarvon Com, Flight. Gemini main.

CRO Roger.

S/C Stand by. Mark.

CRO 12, Carnarvon.

S/C Go ahead.

CRO Roger, we have requested that you record a GET at start of ... exercise.

S/C Roger, will do.

S/C How about the exercise ... holding this cable and ... down for 2 minutes?

CRO That doesn't count.

S/C Doesn't count, huh?

S/C No useful work is being done.

LOVELL Just keep your feet out of the fuel cell switches.

ALDRIN ... I do believe the sun is coming up.

LOVELL Is it?

ALDRIN Well, we will get one more... be there in a couple of minutes. How are you doing on that one?

LOVELL 5 seconds to go. Stand by. Mark. Go when you are ready.

ALDRIN Okay.

LOVELL Stand by. Mark.

ALDRIN Sun coming up....

LOVELL We will make an 11 inning version..

CRO One minute until LOS. Standing by.

S/C Roger. Standing by. Mark. ...S-13 exposure Carnarvon...1 minute ... due to the sunrise.

CRO Okay.

S/C You want to record that one.

S/C Okay.

S/C Okay, let me know when you are ready with the camera.

LOVELL Okay, stand by a second. Just let her hold there Buzz. We will just keep it.

S/C Did...

ALDRIN ...

LOVELL Okay.

ALDRIN Taking a few pictures here, just about dawn.

LOVELL Do you feel that you rested for 2 minutes?

ALDRIN What?

LOVELL Do you feel that you rested for 2 minutes?

ALDRIN No, man.

LOVELL ...

CRO We have LOS of both vehicles.

HOU Roger.

CRO All systems go at LOS.

Gemini Control Houston 21 hours 47 minutes. We have just had LOS over Carnarvon.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/12/66, 12:36 p.m. CST

This is Gemini Control Houston at 21 hours, 50 minutes into the mission of Gemini 12 at the present time. Our next station to acquire will be Canton and this will be 57 minutes after the hour. Fifty-seven, 43 seconds after the hour. By the time we are acquired by Canton we expect the hatch to be closed and repressurization of the spacecraft being taken place. So at 21 hours, 50 minutes, this is Gemini Control Houston.

END OF TAPE.

Gemini Control, Houston, 21 hours, 58 minutes into the mission now. We have acquired Gemini 12 over Canton and conversation is taking place now with, remoted through Canton with Pete Conrad and the crew.

Lovell	That was a pretty good exercise, wasn't it?
Aldrin	Yeah. That was a lot of fun.
CAP COM	12, Houston. How did the hatch closing go?
Lovell	...slipped on me there,...one star to the other.
Aldrin	...pick up stars. Take too long for me to get ...
Lovell	Yeah, I am starving to death already.
Aldrin	If we can...
HOU	12, Houston.
S/C	Go ahead. This is 12.
HOU	Roger, how did the hatch closing go?
S/C	Roger, we are two feet above right now. We want to pull off until we pull up some pressure.
HOU	I didn't quite copy. Would you say again?
S/C	We are 2 feet above and the cabin, trying to build up some pressure. Let me know when we are going to start...pressurizing cockpit.
HOU	Houston copy.
S/C	Houston, 12 here. I am sure .. easily.
HOU	Houston copy.

S/C ...going by me now.

S/C Maybe a little of this.

S/C ...

S/C ..going up again.

S/C I have a status for you Flight.

S/C Oh, I see what is broken

S/C What is it.

S/C My lap belt is broken. It apparently came apart somehow. Well, it wasn't ... anyway.

S/C No.

S/C ..appreciate...

HOU 12, Houston, 1 minutes until LOS. Standing by.

S/C Roger. We are building up pressure in the O_2 again. We are about 4... now.

HOU Houston copy.

S/C ...another pressure...

S/C Well, do we have everything?

S/C I don't know.

CTN Canton has LOS.

Gemini Control Houston 22 hours 7 minutes into the flight of Gemini 12 at this time we have just had loss of signal. Passed out of range of Canton tracking station. Our communications over Canton was quite difficult to follow. The transmission did come in quite garbled. However, we did read that the hatch has been closed. It was scheduled to have been closed prior to Canton and the crew did indicate that they were building up the pressure in the cabin.

Also a confirmation was made that they performed their set second set of exercises or exercise. Buzz Alrdin performed his exercise over Carnarvon. Our next acquisition will be California at 22 hours 15 minutes into the flight of Gemini 12 and we will pick up at that time. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 22 hours 15 minutes into the flight of Gemini 12 at this time. We're standing by now for our stateside pass and expect an acquisition by California in just a moment. Standing by for California this is Gemini Control.

HOU Gemini 12, Houston. Standing by at California. Gemini 12, Houston.

SC Go ahead Houston

HOU Roger, would you turn your delta P circuit breaker on and let me have an idea how you're coming there. I've got a rather lengthy update. If you don't want it now we will give it to you later.

SC The delta P circuit breaker is coming on. We still have the two lights and we're right in the middle of unstowing all this stuff so how about giving it to us later.

HOU Okay, we are standing by.

FD Guaymas remote, California local.

GYM Guaymas remote

CAL California local.

This is Gemini Control Houston, 22 hours 18 minutes. We are continuing to standby during this stateside pass. However, as you heard Command Pilot Lovell indicate the crew is quite

involved at the present time of restowing all of their gear which was involved during the standup EVA. Continuing to standby at 22 hours 18 minutes, this is Gemini Control.

FD Texas remote, Guaymas local.

TEX Texas remote.

GYM Guaymas local.

HOU 12, Houston. Gemini 12 Houston.

SC Go ahead Houston, Gemini 12.

HOU Roger would you check your delayed time circuit breaker please?

SC Roger it appears to have been bopped, let me put it forward.

HOU Okay, thank you very much. While you are listening we got an eat period for you starting at 23:00 to 23:50 and during that eat period at 23:17 over Carnarvon we would like you to purge the fuel cells, section 2 and then section 1. We'll update the rest of your flight plan at Carnarvon.

SC Okay, that is purge the fuel cells over Carnarvon, we'll be standing by for that call for us to do that.

HOU Okay, that will be 23:17:00.

SC 23:17, okay.

SC Okay, is there any S-5,S-6 of interest on this pass?

HOU That is negative. We are going to delete it, that is in the flight plan update that we will pass you whenever you are ready to copy it.

SC I mean on this stateside pass right now.

END OF TAPE

HOU 12, Houston.

S/C Go ahead.

HOU At your convenience, would you go back to FC1 please?

S/C Roger, will do. What is our orbit now?

HOU Wait one.

HOU 12, Houston. You're still in a 139 by 163.

S/C 139 by 163. Thank you.

HOU Jim, for your information, as you pass Bermuda there, the Blue Angels are putting on a little show right now.

S/C Uh huh.

HOU Excuse me, over GBI.

HOU And 12, this is Houston. If you have a chance could you give us 15 seconds on what happened to your tie down?

S/C Yeh, Pete. One of the tie downs we found out after we repressed part way, well, the lap belt let go.

HOU Roger, did it break or did it just come loose?

S/C It looks like maybe it wasn't fastened correctly or something like that. It just came loose. I tried it again after we got down and it was okay.

HOU Okay, thank you.

S/C It happened on the day pass that it let go .....up against the top where it made it very difficult to see anything but we may get the stars on the second pass.

HOU Okay, thank you.

HOU Bermuda remote.

BDA Bermuda remote.

S/C Houston, 12.

HOU Go ahead.

Go ahead, 12. We're listening.

HOU Gemini 12, this is Houston. We're listening.

S/C Roger. A possible problem popped up before EVA. We attempted a urine dump and we weren't too successful. We'll give it another try here as soon as we get squared away.

HOU Okay.

HOU 12, Houston.

S/C Can you guess what the Command Pilot did not jettison on the last EVA?

HOU Yes, we can guess. We want you to check your secondary coolant valve circuit breaker, please.

HOU 12, Houston. Did you copy that?

S/C 12. Negative.

HOU Roger. Check your secondary coolant valve circuit breaker. The celanoid urine dump

is wired to that.

BDA Houston Cap Com, Bermuda Cap Com.

HOU Go ahead.

BDA You're not - ... transfer resumed.

HOU 12, this is Houston. Check your secondary coolant loop circuit breaker.

S/C Roger, understand you want the secondary - wait a minute, we've got that one on. Houston, 12. Say again.

HOU Roger, check that it is on. Is that on?

HOU 12, Houston. We have one minute to LOS.

HOU 12, Houston. How do you read me now?

S/C Much better, Houston.

HOU Okay, check that secondary coolant loop circuit breaker on.

S/C All coolant loop circuit breakers on.

HOU Okay, and have you tried the urine dump or are you going to?

S/C We haven't tried it yet but we're going to give it another try here.

HOU Okay, we're coming up on about 30 seconds to LOS at Antigua.

S/C Oh, okay, Pete, it's beginning to fall into place now. I remember somebody saying that

when you have that secondary coolant valve circuit breaker open that you can't do a urine dump. Is that right?

HOU That's affirmative, that's affirmative.

S/C Just the configuration we're in.

HOU Okay.

END OF TAPE

Gemini Control Houston. We're out of range now with Antigua. The next station to acquire will be Canary. We expect acquisition with Canary at 22 hours, 39 minutes into the mission. At 22 hours, 36 missions -- minutes, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston. Twenty-two hours, 38 minutes now into the flight of Gemini 12. Astronauts Jim Lovell and Buzz Aldrin are nearing acquisition with Canary Island tracking, and we will stand by -- standby for any conversation which might transpire during this pass. In the meantime, in Mission Control, the backup crew members for Gemini 12 are now present.

HOU	Affirmative.
CYI	Okay, we'll give them a TX then.
HOU	Okay.
CYI	Okay, we've got TM solid.
HOU	Roger.
CYI	Gemini 12, Canary Cap Com.
S/C	Canary, Gemini 12, go ahead.
CYI	Roger. Like to check the status of your RCS heaters.
S/C	Roger. RCS heaters have been on since inversion checklist.
CYI	Okay. And verify that your TM switch is in the command position.
S/C	TM is command.
CYI	Roger. Sending you a TX.

CYI Houston Flight, Canary Cap Com.

HOU Go ahead, Canary.

CYI Okay. He's got his ACS on, horizon sensors are still off and the geo rate's still off. Do you want him to turn them on?

HOU Negative.

Canary, Houston Flight.

CYI Go ahead.

HOU Send us another Agena main, please.

CYI Roger. Agena main?

HOU Affirmative.

CYI Roger.

12, Canarys. About a minute to LOS. We'll be standing by.

S/C Roger, Canarys. We'll be able to take an update here shortly.

CYI Okay. I guess we'll give it to you over Carnarvon. And we'll see you in the morning.

S/C Righto.

CYI Houston, Canarys..

HOU Go ahead.

CYI Okay. We've had LOS on both vehicles and both were go.

HOU Okay. We'll see you in the morning.

CYI Aye that's affirmative.

Gemini Control Houston, 22 hours, 44 minutes. We've just had LOS with Canary. We expect to pick up Kano momentarily. In the meantime, as we started to mention, the backup crew members for Gemini 12, that's Gordon Cooper and Gene Cernan, are now in the Control Center and its expected they will fill in and assist in Cap Com duties along with Pete Conrad and Bill Anders. Standing by for any conversation which might transpire over Kano, this is Gemini Control Houston.

HOU Kano go remote.

KNO Remote.

HOU Gemini 12, Gemini 12, Houston through Kano, over.

S/C Roger, Houston, this is 12 here.

HOU Roger, did you get the -- did Buzz get the GLV strips on the EVA?

S/C Naturally.

HOU Very good. Very good. 12, Houston. We have about a five minute pass here at Kano. We are standing by. You'll be updated over Carnarvon.

S/C Roger. Understand.

(pause)

END OF TAPE

HOU 12, Houston. One minute to LOS Kano, standing by.

SC Roger Houston. We are breaking out some lunch now.

HOU Okay.

KNO Kano has LOS.

Gemini Control Houston, 22 hours 52 minutes into the flight. We've just had loss of signal with Kano. The GLV strips referenced during the conversation between Pete Conrad and the Gemini 12 crew, these are four glass like strips that are located behind the hatches on spacecraft 12. During the first standup EVA, Aldrin was scheduled to pull two of these strips and replace with two others stowed within the cabin. Tomorrow he is scheduled to pull all four of these strips. These are aboard to measure any contamination either in powered flight or in orbital flight during the flight of - during the mission of Gemini 12. We assume from his answer that he was successful in fulfilling the needs of the flight plan for today. Twenty-two hours 53 minutes this is Gemini Control Houston.

END OF TAPE

This is Mission Control, Houston, 23 hours 7 minutes 38 seconds after liftoff. During the just completed pass over the Tananarive voice remoting station, spacecraft communicator Pete Conrad passed to the crew of Gemini 12 an update of their flight plan which included two runs of the Airglow Horizon Photography Experiment, S-11, the S-29 Moon Libration Region Photography using the star fomalhaut as the target star. An eat period was programmed, planned landing area update during the pass over the Coastal Sentry. Crew status report and a purge of fuel cells during the next Hawaii pass, and another run of the M408 Beta Spectrometer Experiment and also he spelled out the hours for their sleep period tonight. We have a tape of this particular pass and we will play it for you now and it includes the ground elapsed times of these various experiments and activities. Let's listen to that tape now.

FD Tananarive go remote.

TAN Tananarive remote.

HOU Gemini 12, Gemini 12, Houston through Tananarive standing by.

SC Houston, 12 here. We won't be copying but can you give us a brief resume of what we have coming up?

HOU Okay, we'll do that. We got you eating as you are now. Around 24:13 elapsed, we'd like an

S-11 mode A, and then on the next rev at 25:43 another mode - S-11 mode B. Along about 27:05 we'll get the X-ray experiment back on and at 27:13 an/S-29 on fomalhaut. Then we got you at another eat period, we'll update your PLA update at 28:12 over the CSQ, and get a few things at that time over Hawaii, a crew status report 28:27, you'll have another fuel cell purge and right around 29:00 we'd like to catch that M408 again, which we missed yesterday. Then we are going to have you go to bed at 29:30.

SC Thank you.

HOU Okay, they'll give you the exact details for that whenever you are ready to copy. You can get it at Carnarvon or we will give it to you at the states again.

SC Okay, was that S-29 on fomalhaut?

HOU That is affirm.

SC Houston, 12.

HOU Go ahead 12.

SC (garbled)

HOU Say again 12, I am not reading you. Gemini 12, Houston, say again I didn't copy that.

SC I said all the experiment....

HOU Roger

HOU 12, Houston.

SC Go ahead Houston.

HOU Roger, now on your EVA tomorrow you will be going a rev later but it will be approximately the same GET as scheduled. You realize that seeing you have not gone into your high orbits you will pick up about one whole rev in time but we are going to keep the flight plan going according to the GET. This also means that you will recover a rev later but it will be at approximately the same GET as originally scheudled.

SC Roger, understand.

HOU Carnarvon Cap Com, Houston Flight.

CRO Flight, Carnarvon go ahead.

HOU Would you send us an Agena Charlie at your acquisition?

CRO Roger.

HOU Gemini 12, Houston. One minute to LOS Tananarive standing by.

TAN Tananarive LOS.

This is Mission Control Houston again. That completes the recent pass over the Tananarive voice remoting station. In the discussion between spacecraft communicator Pete Conrad and the crew of Gemini 12, he did mention that the actual ground elapsed times of flight plan events would be as on the original flight plan but because of being in a low orbit resulting from

not being able to do the high apogee burn the actual events will be some one revolution later, because of the spacecraft being in a lower orbit travels faster in a shorter period. We were expecting acquisition now by the Carnarvon, Australia tracking station. We will cut into that conversation as soon as we hear the spacecraft communicator at Carnarvon put in a call to the spacecraft. They are coming up now, let's join it.

SC Carnarvon, 12 here.

CRO Okay, I'm shipping up a TX.
Okay, and I'd like for you to turn your encoder off for a minute so we can get a reset timer reset command to the Agena.

SC Roger.
We're standing by for the update.

CRO Okay, you can turn your encoder back on.
All right we have a fuel cell purge section 2, followed by section 1 and you are ready to copy update is that affirmative?

SC Roger, we'll start fuel cell purge if you'll give us the update.

CRO Okay. 24 13 22 S-11 Mode A, 25 43 33 S-11 Mode B, 27 05 00 X-Ray on, data with Mack, 27 13 36 S-29 Fomalhaut at yaw south 50 degrees,pitch up 50 degrees. From 27 50 to 28 30 eat period, 28 12 00 at CSQ a PLA update, 28 27 00 at Hawaii you will

have a crew status report, a fuel cell purge section 1 then section 2 and leave the cryo read in H2 for the sleep period. At 28 57 00 M408 Mode A, 29 30 00 start the sleep period, H2 heater off for the sleep period.

HOU Carnarvon send us an Agena main please?

CRO Roger.

At 38 40 00 end sleep period. Did you copy that?

SC Roger, we got everything except about leaving the cryos - is that at H2 at Hawaii with the crew status report?

CRO That is affirmative.

SC Roger, and also be informed that our delta P lights on the fuel cells go out while we consume water in making the meals.

CRO Okay we copy that.

CRO Okay and let us know when you are through with the fuel cell purge.

SC Will do.

END OF TAPE

HOU Carnarvon from Flight.

CRO Go ahead.

HOU How about an LOS main Gemini.

CRO Okay.

S/C Carnarvon, Gemini 12 is through with the fuel cell purge.

CRO Okay.

Okay, can you switch to H_2 on your borrow switch please?

S/C H_2.

CRO Okay, we've got it, thank you, you can go back to O_2 off.

12, Carnarvon. We have one minute to LOS. We'll be standing by. You should be coming into daylight.

S/C You're right.

CRO What kind of a day do we have?

S/C Well, its pretty clear up here.

CRO Right.

S/C What have you got down there?

CRO Haven't had a chance to look at it yet.

S/C Did anybody ever find out what was wrong with our radar?

CRO No, not to my knowledge. Seemed like some sort of a problem with ...

CRO Carnarvon has LOS. Both vehicles. All systems go at LOS.

This is Mission Control Houston again. 23 hours, 22 minutes and 50 seconds after liftoff. Both spacecraft as you heard, were go on the ground over the Carnarvon pass. It'll be coming up over Canton Island voice remoting station in approximately 10 minutes. And should be approaching Hawaii toward the upper edge of the Canton acquisition area. Should be one continuous pass, voice-remoted from Houston through Canton and then through the spacecraft communicator at Hawaii. This is Mission Control.

END OF TAPE

This is Mission Control Houston at 23 hours 33 minutes 23 seconds after lift-off of the Gemini 12 mission. While we are standing by for momentary contact with the Canton Island voice remoted station which will continue on through the Hawaii tracking station pass, we have a time of repressurizing the cabin during this morning's standup EVA. It was 21 hours 58 minutes and 35 seconds ground elapsed time. Now you can assume that the hatch was closed some 1 minute earlier than this. We now have acquisition and conversation going on between Pete Conrad and the spacecraft. Let's join the conversation now.

HOU ..you used on your eclipse photos.

S/C Roger, I took about 4 of them, one of them was a ... time and I think ... one second was probably very good picture. Four seconds we were beginning to break out at that time. So I finished that one and one more short one.

HOU Roger, understand about 4 photos.

S/C Roger, that's how many we took.

HOU Okay, thank you.

S/C How are we doing with that pass .....

HOU I didn't copy that, say again please.

S/C Roger, the update said that the rear window was suppose to have a shade on it.

HOU I will have to check on that for you, I wasn't here when all that was going on.

S/C Yea, ...

HOU 12, Houston, we have about six minutes here at Canton and we are standing by.

S/C Roger

HOU Canton go local.

CTN Roger, Canton local.
LOS both vehicles, everything is okay.

HOU Roger, Hawaii.

HAW Gemini 12, Hawaii - standing by, we have nothing for you.

S/C Roger, Hawaii.

HAW Cryo O_2 tank pressure is down around 780 or somewhere to that.

HOU Okay, let's just both watch it.

HAW Okay. It looks like it is still coming down somewhat.

HOU Okay, keep your eye on it.

HAW Where are we staying on the dome right now.

HAW Yea, from what we show on it, it looks like we should be able to go clear down to 500 .

HOU Standby, we will get a number here.

HAW Okay.

HOU Yea, we use 500 to call them.

HAW Okay, very good

END OF TAPE

HAW We are showing the delta P lights off.

HOU Survey of delta P lights off.

HAW Roger. What is the present thinking on that.

HOU When we take a drink we lower the pressure in that water system and allow a little more room in there so we don't trigger the pressure switch.

HAW Okay. We just got all delta P lights on now..

HOU Okay.

HAW No, TM ... sorry about that.

HOU Okay.

HAW Hawaii has LOS.

This is Mission Control Houston again. The change of shift press conference of the Green Team of Flight Controllers will begin momentarily in the Houston News Center. Participants in the press conference will be Mr. William Schneider, Mission Director for Gemini 12, Mr. Clifford Charlesworth, Flight Director of the Green Team, John Aaron, Electrical Environmental and Communications engineer and Dr. Fred Kelly from the Green Team. At 23 hours 48 minutes 31 seconds after lift-off. This is Mission Control.

END OF TAPE

This is Mission Control Houston at 24 hours 27 minutes and 8 seconds after lift-off. We have accumulated some 6 minutes of voice air-to-ground transmission tape during the recent state side pass and the pass over the Ascension Island remoting station, which accumulated during the change of shift press briefing. Let's play those tapes back now.

CAL California is remoted.

HOU Gemini 12 Houston.

S/C Go ahead.

HOU Roger, I have got a few things to pass to you here. First, if you haven't turned on your manual O_2 heater would you turn it on, please? And bump it up to 700.

S/C Okay.

HOU And on your S-29 experiment, between each series of photos, would you skip one frame?

S/C Okay, will do.

HOU And I have a node update if you are ready to copy.

S/C Houston...generally low rate now, we will get it a little bit later.

HOU Okay, and also I would like to talk to you about your fuel cells when you have time.

S/C Okay.

HOU You want it now?

S/C Go ahead.

HOU Okay. What we feel is happening here on the ground that you are leaking some O_2 into the water line from the fuel cell. And as you drink water you relieve the pressure. We feel that you put enough oxygen into the water side now that you have completely expanded the N2 bladder and therefore you are building up some higher water pressure and as you drink water, it can down to its normal level and turn out the delta P lights as you filled the spacecraft tank. Now to get rid of as much water as possible we are going to ask you to purge oxygen once every rev for 30 seconds and then we will continue normal hydrogen purges, but in doing that the feeling is when your first open the oxygen purge valve you jettison what water is in there with the oxygen flow and by doing a 30 second purge each rev, we will get rid of as much product water as possible. And we will call you when we want you to do the 30 second purge over a station once a rev. Do you have any questions on that?

S/C Roger. What does that do to our oxygen supply?

HOU It won't affect it because youre purging for

HOU 30 seconds once per rev and that is the same as for 2 minutes every 6 hours.

S/C Okay.

HOU We are watching your oxygen very carefully and have the feeling that we will be able to keep you okay on O_2. No problem.

S/C Okay. (Keying) camera....

HOU 12, Houston. Would you pass me a PQI at your convenience?

S/C We have 52 percent.

HOU Roger. Understand five two percent.

S/C Roger.

HOU Guaymas remote, California local.

GYM Guaymas remote.

CAL California local.

HOU 12, Houston, in about a minute and a half I want to ask you for a short count. We are going to remote through an aircraft here in Texas just to check it out. And you need not acknowledge this transmission. I will call you in about 2 minutes.

Gemini 12, Houston. Would you give me a count to 10 and down, please? And that is all we needed.

S/C On your toes, 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 Long count out.

HOU Gemini 12, Houston. Outstanding. Thank you.

GYM Guaymas local.

Fisher 372 go remote.

...

HOU Gemini 12, Houston. Would you do it one more time please?

S/C Okay, 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 - 2 3 - 4 - 5 - 6 - 7.- 8 - 9 - 10....from Houston, we will send it to you.

HOU Roger. Thank you very much for the airplane that time. Houston is standing by. Gemini 12, this is Houston, we are going back to our normal communications configuration at this time. ...372 go local. ...372 go local.

GBI LOS GBI.

HOU Gemini 12 Houston 1 minute to LOS Antigua, see you via Ascension. Gemini 12, Gemini 12, Houston standing by at Ascension. Gemini 12 Gemini 12, Houston standing by at Ascension. Over.

S/C Very great.

HOU 12, this is Houston say again. Oh, busy, I got you. Never mind.

HOU Gemini 12, Houston. One minute until LOS at Ascension. Standing by.

S/C This is Gemini 12.

HOU Go ahead, 12, this is Houston.

S/C Roger, We seem to be having the same problem we were having yesterday in getting the Agena to hold, it is starting already to gyro compassing and...

HOU Roger, are you using FC-1?

S/C Negative Flight, mode 2.

HOU Okay. 12, this is Houston. The last time we were able to look at you, you had not stablized at the time you turned the ACS off. And the horizon sensors were still on. You might go over your whole set of commands again. And ensure that it is damped itself before you turn it off.

S/C You mean turn it on?

HOU Do you have it on now?

S/C Negative, it is not on now.

END OF TAPE

HOU Is it on now.

S/C ... is on now.

HOU Okay, but what you are telling me is that when you did have it on gyrocompassing, it didn't seem to be responding. It was over-shooting and coming back, is that right.

S/C That is affirmative.

HOU How far was it over-shooting.

S/C 90 degrees.

HOU 90 degrees.

S/C Yea, we still show the proper aim .. and got the proper command in for TDA forward and in Flight Command Mode 2 ... the Agena control and she took off on 90 degrees. We have double checked our commands.

HOU I see, Okay, let us kick it around for a little bit.

S/C Roger.

HOU 12, Houston, when did this happen. Were you over the states. Was this while you were still over Ascension and over the range.

S/C I'm not for sure where it was happening, Houston.

HOU Okay.

This is Mission Control at 24 hours, 41 minutes and 2 seconds after liftoff. That completes the pass over Tananarive voice remoting station. We have loss of signal there and in some ten minutes the spacecraft and Agena will be passing over the Carnarvon, Australia tracking station, mid-way through the sixteenth revolution. We will come back up at that time. This is Mission Control, Houston.

END OF TAPE

This is Mission Control Houston at 24 hours, 48 minutes and three seconds after liftoff. Gemini 12 momentarily be picked up electronically from the Carnarvon, Australia tracking station. We're standing by for spacecraft communicator out at Carnarvon to put in a call to Gemini 12. They now have telemetry solid at Carnarvon. Carnarvon is now putting in a call. Let's listen.

S/C	Go ahead, Carnarvon.
CRO	I'm going to send you up a TX.
S/C	Roger.
CRO	Okay, we've got an Agena clock reset load. We'd appreciate if you'd turn your encoder off.
S/C	Encoder off.
CRO	Okay, 12, Carnarvon. You can turn your encoder back on again.
HOU	Carnarvon from Flight.
CRO	Go ahead.
HOU	Ask him how he thinks the Agena is performing right now.
CRO	Okay. Looks real steady from the ground, Flight.
CRO	12, Carnarvon.
S/C	Go ahead.
CRO	Okay, we show you in FC2, Agena 0 0 0, and you BEF. Is that affirmative?

S/C Roger, we're not too sure yet. We're in that area where we can't see the ground at all. We were just about ready to ask you what you had down there.

CRO Right. We show the ACS is on, horizon sensors are on and you're gyrocompassing TDA forward. Everything looks pretty steady down here. Could you give us any idea from up there?

S/C Yeh, we're steady from here too. I guess maybe we're just going to take a little time to gyrocompass around and get settled down.

CRO Okay.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU We agree that we ought to let it settle down and give it time to gyrocompass. The other think we'd like them to check is that when checklist calls for horizon sensors off, did he note that the last time out, we may or may not have seen that over the states.

CRO Okay, You did not see it over the states?

HOU That's right.

CRO Right.

HOU But, we just might not have contacted at the time, Jim, but you might remind him of it.

CRO Okay.

CRO 12, Carnarvon.

S/C Go ahead.

CRO Okay, just a reminder that when you go through that checklist and come to horizon sensors off, that you might put it in there that it seems as though over the states they note it still on. They didn't notice the off sent.

S/C All right.

CRO Okay, and right now, you're perfect. You're there at TDA forward and no yaw park rates at all. You're real great. Though you might just have to give it a little more time to gyrocompass.

S/C Right.

CRO Flight, Carnarvon.

HOU Go ahead.

CRO Okay, we're noticing a slight increase trend in the OCSA nitrogen pressure.. temperature, excuse me. It's 86.3 now.

HOU Going up?

CRO Affirmative.

HOU Okay.

CRO Okay, we show Canaveral about 82.7, 81.5 at Texas.

HOU Okay, we'll watch it.

CRO One minute to LOS at Carnarvon and standing by.

HOU And can we have an LOS main Gemini, please.

CRO Roger.

HOU And a contingency India.

CRO Roger.

CRO Carnarvon has LOS Gemini.

This is Mission Control Houston, 24 hours, 57 minutes and 25 seconds after liftoff. We have had loss of signal at the Carnarvon, Australia tracking station. We'll be coming up over Hawaii at 25 hours and 13 minutes which will be some 20 minutes from now. We'll come back up at that time. This is Mission Control.

END OF TAPE

This is Mission Control Houston, at 25 hours, 13 minutes and 18 seconds after liftoff. We are standing by here for acquisition at the Hawaii tracking station which should come up any moment now. Still standing by for Hawaii. According to the site acquisition table, it should be in about four seconds. Hawaii does have telemetry solid both vehicles. Let's standby now for any air-to-ground conversation.

HAW Gemini 12, Hawaii, we would like to do a 30 second fuel cell purge whenever you are ready.

S/C Roger, go ahead. Which section would you like.

HAW We would like both sections, we can start out with section one first.

S/C Roger, start out with section one - 30 seconds.

HOU That is just oxygen, Hawaii.

HAW And that's oxygen only on this.

S/C Roger, O_2 only. Purging on section one.

HAW Roger.

S/C Roger, on section two.

S/C Roger, fuel purge off.

HAW Roger, thank you, looks good.
We have nothing further for you, we will be standing by.

S/C Roger.

HAW And we have no Delta P lights at this time and no Delta P lights during the purge.

HOU Were they on before the purge.

HAW That's negative. They were off the whole time.

HOU Thank you.

HOU Hawaii from Flight.

HAW Go, Flight.

HOU Would you ask him if the EVA jettison list was normal or were there any exceptions.

HAW 12, HAWAII. Was the EVA jettison list normal or were there any exceptions on it.

S/C It was normal except the command pilots ECD was not jettisoned.

HOU Thank you.

HAW Roger, thank you.

This is Mission Control. We are still over the Hawaii tracking station waiting for additional conversation between spacecraft communicator at Hawaii and the crew of Gemini 12. We still have some three minutes and 10 seconds in this pass. Probably unlikely we will have any further conversation, but we will standby just in case. There will be a gap of oh, some 2 minutes between the Hawaii loss of signal and acquisition at California and the Stateside pass at the end of the 17th revolution and the beginning of the 18th. We will standby for further conversation from Hawaii.

HAW 12, Hawaii, we will have LOS in a minute.

S/C Roger.

END OF TAPE

HAW Hawaii has LOS both vehicles. ..turn the control system off on the Agena and went to the Gemini control system right at our LOS.

HOU Roger, Hawaii.

HAW Everything was go at LOS.

This is Mission Control Houston. During that pass over Hawaii there was a purge of the fuel cell system aboard the spacecraft. We are waiting momentarily, contact through the California station from which spacecraft communicator Pete Conrad here in Mission Control will converse with the crew. We should be having contact any moment now. In fact they are already a couple of seconds past the time due according to the side acquisition table. During this pass the - another run of the airglow horizon photography experiment S-11, is scheduled to be run during the pass over the Eastern Test Range just as they go into darkness. We will stand by now for conversation during this state side pass.

HOU 12, Houston. How is everything going?

S/C Roger, this pass looks a lot better than the last one. We are pretty well stablized.

HOU Okay, I kind of think from what we could see on the ground that you may not have had enough time for the Agena to settle down. That's all. You can get her set up 15 minutes or so in advance I think it will work all right, for you.

S/C All right. We are following the procedures of the S-11 and we are upside down now.

HOU Okay. I have got an S-6 update for you which the weather people are quite interested. Can I give it to you now?

S/C Go ahead.

HOU Okay, the time is 26 49 45 will be an S-6, the yaw is zero, pitch down, 30 and it seems to be some perculiar air mass anomaly. I guess there is a clouds associated they would like to get a picture of it.

S/C Okay, I will give it a try.

HOU Okay, and have you gotten node update?

S/C No, would you pass that up.

HOU Okay. Time 25:04:17 node rev 16, 151.0 east and right Ascension is 11 hours 21 minutes.

S/C Right, thank you.

HOU And, in the world of sports today Notre Dame 64, Duke 0. Mississippi 14, Teneessee 7. We will have some more for you in a little while.

S/C Sounds great.

HOU Guaymas remote, California local.

GYM Guaymas remote.

CAL California local.

HOU Texas remote, Guaymas local.

GYM Guaymas is local.

HOU Okay.

END OF TAPE

LOS Antigua

LOS GBI

HOUSTON 12 Houston, do you have time to copy another update, or not, I don't want to bother you.

S/C A quickie.

HOU Okay it's another S6. 28 09 54 S6; yaw zero, pitch down 30; it's a centralized storm near the Phillipines. We'd like to get those pictures if possible.

S/C Will do.

END OF TAPE

HOU 12, Houston. One minute to LOS Antigua, standing by.

ANT LOS Antigua.

This is Mission Control Houston at 25 hours, 46 minutes and 55 seconds after liftoff. That was a rather quiet station pass over the stateside range. We'll be coming up over the Ascension station in some five minutes from now. We'll come back up at that time. This is Mission Control.

END OF TAPE

This is Mission Control Houston. Spacecraft Communicator Pete Conrad just put in a call to the spacecraft through the Ascension station. Let's join that conversation now.

When contact was first established through the Ascension station, Pete Conrad said, "this is Mission Control Houston standing by" through the Ascension station. We are still waiting for further conversation. Apparently the crew is still busy in this round of the Air glow horizion photography experiment. We will continue to standby and monitor the air-to-ground.

(dead air)

Still two minutes and 33 seconds remaining of this Ascension Island pass. They are still very quiet. Standing by for any possible conversation between the spacecraft Gemini 12 and Spacecraft Communicator here in Mission Control.

(dead air)

HOU Gemini 12, Houston - one minute to LOS, Antigua standing by.

S/C ....

HOU This is Houston, 12, I didn't copy that

S/C .... difficulty with the shutter ..... closed.

HOU Roger, understand.

ASC Ascension, LOS.

This is Mission Control Houston. We have had loss of signal over the Ascension Island station at 26 hours, 1 minute and 9 seconds after liftoff. This is Mission Control Houston.

END OF TAPE

This Mission Control Houston 26 hours 8 minutes 30 seconds after liftoff. Gemini XII is coming up over the Tananarive voice remoting station. Should have acquisition within the next 2 seconds. We'll be standing by for any conversation between Houston through the Tananarive station to the crew of Gemini XII. Let's stand by now on air ground and see what and listen to hear what is said.

HOU Tananarive go remote.

TAN Tananarive remote.

HOU Gemini 12, Gemini 12 Houston at Tananarive over.

S/C Roger, Houston.

HOU Roger, 12 could you tell me how much S29 film you have remaining? And with respect to your camera problem you might check that the F stop has not slipped underneath the tape if it's out of the detent, it is possible that the shutter won't operate quite correctly and also if the lens is not rotated all the way in to the detent on the camera this also may happen.

S/C We finally figured a way to get it to working.

HOU Say again please.

S/C Roger, we have...

HOU Houston copy.

S/C We have between 10 and 15 S29 and S11 shots left on this magazine and we have another full magazine.

HOU Houston copy.

HOU Gemini 12 Houston, one minute to LOS Tananarive standing by.

TAN Tananarive LOS

This is Mission Control Houston, we have had loss of signal at the Tananarive voice remoting station. The next station to be acquired will be the Carnarvon Australia tracking station in approximately 9 minutes, at 26 hours 16 minutes and 50 seconds after liftoff this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston at 26 hours, 25 minutes and 7 seconds after liftoff. We should be coming into the Carnarvon, Australia acquisition area. We are standing by for a fairly brief interchange here over that station. It is a very low elevation angle pass, the last one of the day. As a matter of fact the elevation is only some 3.09 degrees for a duration of four minutes, 41 seconds. Let's join that conversation now.

(dead air)

A fairly quiet pass up to now over Carnarvon. The spacecraft communicator out of Carnarvon, Jim Fucci, said earlier that he was standing by. He called the spacecraft and said, "Carnarvon standing by".

CRO Flight, Carnarvon.

HOU Go ahead.

CRO Okay, we have pretty intermittent TM, but it looks like the ECS control valve outlet cap primary is cycling.

HOU From what to what.

CRO Uh, let's see, about 20 up to around 50 degrees.

HOU Okay, 20 to 50, that's the ECS primary out.

CRO That is affirmative.

HOU Okay.

CRO Now, that may not be too valid a reading because of our intermittent TM, but the rest of it looks pretty solid, so I can assume it is fluctuating right now.

HOU Okay, thank you Jim.

CRO Right.

CRO It looks like it is cycling for about 26 to 54 degrees.

HOU 26 to 54.

CRO That's affirmative.

CRO One minute to LOS, and standing by 12.

S/C Roger.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU How fast is that fluctuating, Jim.

CRO About 20 seconds for one complete cycle.

HOU Goes up and back down in 20 seconds.

CRO Up, down and up.

HOU Okay. Carnarvon, have them turn the A pump on in the primary loop.

CRO Roger. 12, Carnarvon. Turn the A pump on in the primary loop.

HOU Tell them why.

CRO 12, Carnarvon.

S/C Go.

CRO Okay, we are getting fluctuation on your primary temperature in your control now.

S/C Roger, you want the B pump off right.

CRO Roger, that is right.

CRO We have had LOS.

This is Mission Control Houston. We have had loss of signal at the Carnarvon, Australia tracking station. The next station to acquire Gemini 12 will be the Hawaii station in some 19 minutes from now. We will come back up at that time and carry that conversation. This is Mission Control Houston. Twenty-six hours, 30 minutes, 50 seconds after liftoff.

END OF TAPE

This is Mission Control Houston at 26 hours 49 minutes and 6 seconds after lift-off. Gemini 12 at the present time is now coming up on the Hawaii station. We should have acquisition at any moment. We will stand by for any conversation between spacecraft communicator Keith Kundel at Hawaii, and the crew of Gemini 12. Let's listen in.

HAW We have initial TM contact on both vehicles. It is still a little shakey at the present. We are getting intermittent radar track.

HOU Okay.

HAW Gemini 12, Hawaii. We have a 30 second purge to do some time during this pass, so we show TM intermittent. We would like to wait until later on in the pass, to do it.

S/C Roger, Hawaii. Have you had some pretty bad weather down there today?

HAW No, it has been doing quite a little raining. It is raining pretty heavy outside right now. It looks like... solid TM, tape dump started. 12, Hawaii. TM is looking good and solid at present. Whenever you are ready to start that purge, let us know.

S/C Hawaii, would you tell us which section to go first, please?

HAW Let's start section 2 on this one. Does it make any difference Flight?

HOU 2 and then 1.

HAW Roger, let's start with section 2 and then section 1.

S/C Roger, here is section 2.

HAW Purge on.

HOU Roger.

S/C Let me know when it is off.

HAW Roger. Section 1 purge on.

HOU Roger, thank you.

HAW Purge off.

S/C ...

HAW Roger, thank you. 12, it looked good from here.

HOU Hawaii Com Flight.

HAW Go Flight.

HOU How is is control valve look.

HAW I get no cycling.

HOU Roger.

HAW It looks like we might have lost a little bit of the tape dump off probably due to antenna shading. 12, Hawaii. We just sent you a TX.

S/C Roger.

HAW 12, Hawaii. We will have LOS in approximately 1 minute.

S/C Roger.

HAW Hawaii has LOS. Everything was go at LOS.

HOU Roger, Hawaii.

This is Mission Control Houston. We have had loss of signal at the Hawaii tracking station. During the pass over the station which was rather quiet conversation wise, there was a purge of the Gemini 12 fuel cell system. The California station is due to acquire momentarily within the next 27 seconds or so. We will stand by for the beginning of conversation between spacecraft communicator Pete Conrad here in Mission Control and crew of Gemini 12. This particular pass toward the end of the 17th revolution will curve down over the central portion of Mexico through Central America and across the canal zone. And over the northern portion of Brazil. Standing by for telemetry contact. Pete Conrad is putting in a call. Let's join.

HOU Gemini 12,

END OF TAPE

Pete Conard is putting in a call, let's join...

HOU Gemini 12 Houston, over.

S/C Go ahead Houston.

HOU Roger, we'd like you to power down your A pump in the primary loop and bring the B pump back on again so we can watch it over the states. And we'll give you a call when to do that when we have telemetry.

S/C Well, we just did that. We just powered down the A and put on the B. You want us to reverse that?

HOU No, leave it on. I don't have much else for you. Navy 30 Vanderbilt 14, I'm still waiting on the Army score.

S/C It's about time Navy won.

HOU Roger.

While we are waiting for further conversation between the ground and spacecraft Gemini 12, about 12 minutes from now the S29 moon librations regions photography experiment is due to be run. Let's join the conversation again.

S/C Say Houston, 12

HOU Go ahead 12.

S/C We're still trying to operate the Agena correctly and no matter what we try, the doggone thing just keeps going around. There must be something wrong with it, we've gone through commands a dozen times

and unless we send these things out perfectly get right on the old heading, stop all over rates with the old control system and then set it up she's okay otherwise she keeps on travelling.

HOU Roger, we copy.

Guaymas remote, California local.

GYM Guaymas remote

CAL California local

S/C We just found out BEF to go to TEA south, and yawing around a bit at 360 and we're BEF again. That's the kind of thing that happened.

HOU Roger, did it stop or did you have to stop it?

S/C Well, it never does stop at any reasonable heading it went up to a pitch up of about 40 degrees or so and it was going past SEF.

HOU Roger, is this in SC 1 or 2 or have you tried both?

S/C It doesn't seem to make too much difference

HOU 12 Houston, we're waiting to acquire you at Texas here where we can look at the telemetry and see if we can see anything on it and we'll keep you advised.

S/C Roger, we're just taking over control again so we can get ready for S 29, and see what we can do.

HOU Roger, one other thing. Have you tried to stabilize it with the horizon sensors and the GO rate off to determine if your gyros are working alright and maybe that would help us to isolate the problem.

S/C We'll give that a try when we get some time here.

HOU Okay, I think one thing that would be a help to us would be to go inertial on it with the G O rate off and the horizon sensors off and say and FC 2 and see if it will hold the fixed heading in whatever attitude you're in and then bring on your G O rate and then your horizon sensors and then your gyro compassing.

S/C Yeah, that does real well, in holding inertial re-reference and also does quite well with G O rate normal and reverse without horizon sensors. It is only when you tie that horizon sensor in with the gyro compassing that it doesn't seem to want to play the game right.

HOU Well, it sounds like then you do have something in gyro compassing circuit and we'll see....you're coming up on the time for S 29 you can't try and power up for it while we're looking at you. We have you here for about 5 minutes.

S/C Okay, we have the attitude system off on the Agena now.

HOU Roger, understand it's off. We're seeing that the p pitch horizon sensors are to the yaw channel

HOU Texas remote Guaymas local.

HOU Texas remote

GYM Guaymas is local

S/C Roger. ...pitch a right sensor yaw when we want it to go TEA south. That's when we did the 360.

HOU Roger, understand.

END OF TAPE

HOU 12, Houston, you can leave the B pump on in the primary loop. It looks alright now.

HOU 12, Houston, you can leave your B pump on. It looks pretty good.

S/C Roger, primary B on, primary A off.

HOU 12, Houston, would you put your quantity read switch to O_2 please.

GBI LOS, GBI.

HOU 12, Houston, you can put your quantity read switch to OFF. Thank you.

S/C Roger - You are to be advised the update on S-29 27:13:36. Sunset came just after that time and it's impossible to see any stars enough to get a shot with the vibration we have. We are trying again at 27:14:57.

HOU Roger.

S/C We can attempt to try and see if we can't get a shot of it a little later time.

HOU 12, this is Houston - Roger.

HOU 12, Houston.

S/C Go ahead.

HOU Roger - we just want you to point there at that region and go inertial.

S/C Roger.

HOU 12, this is Houston. You have about one and a half minutes, one minute to LOS - standing by.

HOU 12, Houston. X-ray - ON, Beta with Mag.

GTI LOS, Turk.

This is Mission Control Houston. We have had loss of signal through the Antigua station of the Eastern Test Range. There will be a very low elevation angle pass over Ascension Island voice remoting station. As a matter of fact, the elevation angle is only 1.3 degrees for a duration of three minutes and 20 seconds, hardly time to even establish contact. However, we will standby. During this just completed stateside pass, a certain amount of conversation was carried on from Mission Control here and the crew regarding some apparent problems in the Agena stabilization system in the gyrocompass mode, where it tends to drift somewhat in attitude while in the gyrocompassing mode. However, all the other stabilization modes seem to function properly in the Agena. The Agena systems engineers and various others here in the Control Center are going over the schematics and telemetry indications to see what the problem might be. Perhaps there will be more discussion later on on this minor problem. At 27 hours, 19 minutes, 28 seconds after liftoff, this is Gemini Control.

END OF TAPE

This is Mission Control Houston at 27 hours 29 minutes 37 seconds after lift-off. Let's tune in on the conversation through the Ascension Island tracking station.

HOU Roger, Gemini 12, would you check your X-ray Beta switch with mags please.

S/C Okay.

HOU And 12, we are going to try to get you to a little gyro compassing exercise over the CSQ. We would like you to be either TDA north, or TDA south as you arrive over the CSQ and then setup the commands to gyro compass so that the TDA is aft or spacecraft SEF, so we can watch the gyro compassing circuit on the telemetry.

S/C ...CSQ gyro compass spacecraft SEF...

HOU Roger, we want to have you gyro compass for 90 degrees and so we can watch the circuit there. So you could be TDA south or north and plan to setup your command so that you gyro compass at FC-2 to spacecraft SEF. That is correct.

S/C Roger,...we are still trying to get... without a platform reading.. rate command.....

HOU Roger, I think I copied you. You said your pointing commands are not good enough without your platform, is that what you are saying. You are not sure where you are pointed.

S/C That is affirmative, when you go into the darkness 50 degrees up and 50 degrees down means nothing to you. You can't see a thing.

HOU Roger. I copy. We will work this out and see if we can't give you something better than that and we can talk to you at Hawaii.

S/C Roger. We are ready for a 5.5 update...

HOU 12, this is Houston. I didn't copy that last one. Comm is pretty bad. 12, Houston we are about 1 minute until LOS. Standing by.

S/C Roger.

This is Mission Control Houston. Apparently we have had loss of signal, from the Ascension Island voice remoting station. During that pass the spacecraft communicator here in Mission Control passed to the crew some instructions for an exercise in operating the Agena gyro compassing system on the upcoming pass over the tracking ship Coastal Sentry south of Japan. The purpose of this will be to allow the Flight Controlers aboard the Coastal Sentry to examine the gyro compassing circuits on telemetry to perhaps determine what the problem is in apparent deviations from attitude while in the gyro compassing mode. At 27 hours 35 minutes 17 seconds after lift-off, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, 27 hours 43 minutes and 38 seconds after liftoff. Gemini XII is within a few seconds of being acquired by the Tananarive voice remoting station from which we anticipate a brief conversation between Houston and the crew of Gemini XII. Mean while their flight plan at the present time calls for an eat period lasting from 27 hours 50 minutes ground elapsed time to 28 hours 30 minutes. We are standing by for acquisition of signal. Tananarive does have acquisition. Let's join the conversation.

HOU Gemini 12 Houston through Tananarive, over.

S/C Go ahead, Tananarive.

HOU Gemini 12 Houston through Tananarive, I'm not reading you, you're reading me to give you a little more on this test over the CSQ. We would like for you to send all commands to gyro compass the 90 degrees to the SEF position and while over the CSQ and if you will send the commands slowly they can verify that each command is going in and verify that we are getting the correct response. And then we can watch it from there.

HOU Roger. 12 Houston, how do you read me now?

S/C Read you loud and clear.

HOU Roger, did you copy my last, over.

S/C Roger, we'll send those commands over CSQ and we'll be in VOX and say it slowly so we can verify each one.

HOU Okay and at ascension I didn't quite copy the last thing about the problem you were having pointing, is there something that we can give you that will help this or are you just saying that you are having difficulty locating that region from Fomalhaut?

S/C My only comment there Houston is something like this going on here we're getting the region that is high in the sky at sunset that we can't get to that without a platform. We have no horizon to go by. We are going in to darkness and the light is reflecting off the Agena so we have nothing to look at. It requires a lot attitude fuel on the spacecraft part to determine where we are after sunset, to line up the stars and get in to position to take the pictures which means that we are late in doing S 29 and we finished it just as the libration region is setting which is too late.

HOU Roger, copy.Yeah, I guess the only thing we can do for you there, I guess you'd better wait until you are dark adapted and then just go as rapidly as possible to Fomalhaut and over.

S/C Roger, either that or add a platform...one of the two

HOU Roger, well, we want to save that oxygen so we would like to leave it down.

S/C Roger. for hindsight we were set up for it at the end of the 95 night pass if we hadn't had the S6, we

could have stayed inertial all time.

HOU Roger. 12 Houston. We have about one minute to LOS standing by.

Tananarive LOS

And this is Mission Control Houston at 27 hours 52 minutes 42 seconds after liftoff in the Gemini XII mission. The next station which will acquire spacecraft Gemini XII will be the tracking ship Coastal Sentry in approximately 15 minutes. At that time there will be an exercise run with the Agena gyro compassing system to allow flight controllers aboard the ship to check out the circuitry by means of telemetry to perhaps pin point the source of the erratic performance of this particular mode of the Agena stabilization system. We'll stand by in 15 minutes for that particular pass. This is mission control.

END OF TAPE

This is Mission Control Houston. We're at 28 hours 7 minutes and 2 seconds after liftoff. We're coming up over the tracking ship, Coastal Sentry with Gemini 12. At this time, their schedule will be S-6 Synoptic Weather Photography experiment of a tropical depression just east of the Phillipine Islands; however, let's now tune in to the air-to-ground conversation between the Coastal Sentry and the crew of Gemini 12.

CSQ — Gemini 12, CSQ

S/C — Roger, CSQ, go ahead.

CSQ — Roger. Before we start this test, we'd like you to turn your encoder off.

S/C — Roger, the encoder is off and the situation is this, the spacecraft control the combination the TDA North, the spacecraft south, the spacecraft is still holding that situation, and anytime you are ready, we'll go and send command to gyro compass the Agena around in flight control mode 1 to spacecraft SEF, TDA west.

CSQ — Okay, now, you're still having this difficulty in flight control mode 1, is that correct?

S/C — In both flight control mode 1 and 2.

CSQ — Okay, we'll run the test in 1.

HOU — And we better be in high rise and sensor gains, CSQ.

CSQ — Roger, flight

CSQ — You can turn the encoder back on and we'd like to run this test in high rise and sensor gain.

S/C — Rog, CSQ

CSQ — Okay, give us a call when you're ready to go and call the command out, CSQ.

HOU — CSQ flight, is he in high rise and sensor gains?

CSQ — They've got the ACS off right now, flight.

HOU — Okay. The normal checklist flight control mode 1 has high horizon sensor gains for gyro compassing and I want to start that way.

CSQ — That's affirmative, and I advised them that.

HOU — Okay.

CSQ — He says roll right, set your yaw high RP ..... Go ahead 12.

S/C — Roger..... in reverse 360

CSQ — TDA aft spacecraft SEF. Roll right on the schedule 310. ...out 320. ACS is on 401.

S/C — Say again.

CSQ — ACS just went on.

HOU — Roger

S/C — horizon scanner on 301, GO rate on 351, gyro comp on to 341.

HOU — TDA north. CSQ, flight

CSQ — Go ahead, CSQ

HOU — Do you see it coming around?

CSQ — That's affirmed. He's torqueing it into yaw, but I don't think we're getting very much out of this, stand by one flight. Flight, CSQ.

S/C — Instead of going FDS, we're going BEF.

HOU — Go ahead.

S/C — Okay, I think we ought to organize this just a little differently, maybe do it at Hawaii. The Agena during the test is still unstable.

HOU — Say again?

S/C — It wasn't lined up, the Agena wasn't when we started the test. We pulled it around with the Gemini and then turned it loose.

HOU — Yeah, Okay, but that uncages the gyros and then it should gyro compass the SEF.

S/C — It's coming around all right.

HOU — The wrong way?

S/C — A little bit.

CSQ — This is CSQ, I'm transmitting you a TX.

S/C — Roger.

HOU — CSQ, flight. Ask him which way he is yawing.

CSQ — ....The way we see it, he's not doing much of anything. They've started to move toward medium position, but now it's just standing half way between BEF and spacecraft pointing south.

S/C We see some high tracking in yaw.

CSQ Did you say you were fairly stable at that attitude?

S/C It's yawing around to the left now.

HOU That's the way it's supposed to go, CSQ. He started a little bit off, he might go that way. CSQ, flight, how does it look? CSQ.

CSQ I don't really know, flight.

HOU say again.

CSQ I don't really know, flight.

HOU Okay, tell them that if it doesn't get the attitude while still in contact, we'll let it go to Hawaii and continue to watch it. It may be coming around all right.

CSQ 12, CSQ

S/C (garbled)

CSQ Okay, if you don't get the attitude in about 30 seconds, let it go and we'll pick it up over Hawaii.

S/C Roger, it seems to be fairly well behaving this time.

CSQ Roger.

S/C It went pretty nicely last night in SEF position, it could possibly be that we gyro compassed to either a north or a south position....

CSQ Rog.

S/C It seems to be slowing down now, with the SEF attitude.

HOU Is it coming SEF? Let's just leave it alone and see how it works.

CSQ We've had LOS on Gemini.

HOU Okay. I didn't copy his last, did he say it was coming around and slowing down and looked alright?

S/C A gyro rate over Hawaii.

And this is Mission Control Houston 28 hours 15 minutes 41 seconds after liftoff. As you monitored that pass over the CSQ, the test of the gyro compassing mode of the Agena target vehicle was run through and we're going to follow through on the test during the upcoming Hawaii pass which should begin about 10 minutes from now. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston at 28 hours 24 minutes 44 seconds after lift-off. We are coming up on Hawaii station. We are within 1 minute from acquisition at the Hawaii station. We are - spacecraft communicator Keith Kundel is standing by to continue the gyro compass exercise with the Agena. During this pass to follow through on the test that were being run and checked by ground telemetry. Earlier in this revolution over the Coastal Sentry tracking ship. Standing by for the initial contact. Okay let's join that conversation.

HAW. Roger, looks like he is going around okay here.

S/C I was thinking we might want to try that north or south heading, but we have got to do some 408 coming up shortly.

HAW Yes, roger. We will see what Flight thinks about doing all this. Also we are going to have another one of those 30 seconds purges plus I have got a block 4 update for you too. And crew status report.

S/C Okay, we are in the process of working on the meals. We may have to delay the crew status report.

HAW Roger.

HOU Okay, go ahead and get the rest Hawaii. We will talk it over here. It looks like it ---

S/C ---now. I have got my partner to copy the PLA update.

HOU Okay, what we want to do is start with section 1 section 2 and then also do a normal purge on the H_2 this time.

S/C Okay, want to start with the H_2 purge, section 1 and 2 and then I will do the O_2 for 30 seconds. Is that okay?

HAW Yes, that is roger.

S/C Okay.

HAW Okay, let me know when you are ready to copy.

HAW Flight, it looks like he came around real good from here.

HOU Roger.

S/C Delta P lights hydrogen purge, section 1.

HAW Roger, we copy.

S/C Ready to copy.

HAW Area 20 3 Alpha, 30 56 58, 20 plus 41 26 plus 09. Area 21 3 Alpha, 32 32 56, 20 plus 08 25 plus 35. Area 22 3 Bravo, 34 09 17, 19 plus 23 24 plus 45. Area 23 Alpha Charley 35 03 12, 20 plus 53, 27 plus 27. Area 24 Alpha Charley 36 38 31, 21 plus 07, 26 plus 26. Area 25 -2 Alpha 38 12 14, 21 plus 11, 26 plus 41. Area 26 Alpha Charley 39 48 37, 21 plus 07, 26 plus 33. And that will be roll left 80, roll right 100. Weather is good in all areas with the exception of 24, which is marginal and it does include the SEP maneuver. Over.

S/C Roger, weather good except for 24 which is marginal.

HAW Roger.

HOU Hawaii, an Agena India please.

HAW Wilco.

HOU Hawaii Com, Flight.

HAW Go Flight.

HOU Have you got everything up that you had to get up to the crew?

HAW That is affirm.

HOU And how does the Agena look?

HAW Agena looks fine.

HOU Okay. SEF, TDA aft.

HAW It is 0180.

HOU Okay. And it's/in deadbands.

HAW That is affirm.
Very little, well we are not showing any thruster activity right now.

HOU Okay. Roger. We talked to them a little more over the States, Keith. We think they ought to stay that way and do this 408 up over the Atlantic this pass and after that experiment try gyro compassing out these plus or minus 90 degrees and see

HOU how that works.

HAW Okay, where do you want to do all that?

HOU Just tell them to go ahead and do it after the experiment at their leisure.

HAW Okay. And that was gyro compass to what?

HOU Plus or minus 90 is what is worrying Buzz. So have him go ahead and do it again and see how it works.

HAW Okay, 12 Hawaii. Flight recommends that you stay like you are and go ahead and do that M408 experiment, once that has been completed, you can go ahead and try your plus or minus 90 degree maneuver.

S/C Roger.

HAW Okay, it looks like we have got about a minute and a half. You going to have any of your crew status report information available?

HOU Hawaii, Flight.

S/C We are in the process of eating our last meal. We will give you a status report when we finish it.

HAW Okay, and would you place your quantity read to the H_2 position, please, for us?

HAW Roger, thank you.

HOU Hawaii Flight.

HAW Go Flight.

HOU You need to get an SP disable ground command 40, spacecraft 240.

HAW Okay, could you turn your encoder off for a brief moment and we will send SPC disable here.

S/C Encoder off.

HAW Okay, you can turn it back on. We have it. Looks like we have about 30 seconds to LOS.

S/C Roger.

HAW Okay, Hawaii has had LOS.

And this is Mission Control Houston. We have had loss of signal at the Hawaii tracking station. During that pass, the planned landing area block updates were passed to the crew. These are routine updates, retrofire times for a series of revolutions in the future hours of the flight for landing. Also a fuel cell purge was run during this pass and the crew reported that they were in the midst of having a meal. We are coming up on a very short duration State side pass, which will only touch the California and Guaymas, Mexico stations. We are scheduled to be acquired at the California station in approximately 1 minute

from now. We will stand by until we have telemetry indications through California. California does have acquisition. We will stand by until Pete Conrad gives them a call through California. Let's join that conversation.

HOU Gemini 12, Houston

END OF TAPE

HOU Gemini 12, Houston standing by California.

HOU Gemini 12, Houston - over.

HOU Gemini 12, Houston.

S/C Houston, Gemini 12, go ahead.

HOU Roger. We would like to have you spend about 20 minutes on your 408 and then if you would like to go ahead and do some more gyrocompassing to either South or North and wind up SEF, if you can let the CSQ know how you are doing, we have looked at all the data and as best as we can determine all the control systems in the Agena are working correctly. In FC-1 with all that fuel aboard it may take quite a while, and if you do have this excersion get off more than 40 to 45 degrees, I just recommend you go ahead and resend all the commands again. We had that happen once or twice on our flight, and as I say, the best we can determine, it looks like it is running okay.

S/C Roger.

HOU You can give us a call through Tananarive or CSQ on how you make out with your yaw to the North or South headings.

S/C Roger, we will proceed doing that after M-408.

HOU Roger, standing by.

HOU 12, Houston, when you get done go on back into FC-1 and go ahead and go back to your ACS gains low so that we conserve control gas.

S/C Houston, 12. You are fading out.

... Guaymas remote, California local.

GYM Guaymas remote.

CAL Cal. local.

HOU Roger, 12, this is Houston through Guaymas now. We were loosing you at California. I say again, When you get done with your test, make sure you go back to 460 ACS gains low so that you save your control gas. Did you copy 12.

S/C Roger - Houston we will go back to 460.

HOU Thank you. 12, Houston, would you pass how many S-29 pictures you took and how many S-6 pictures please.

S/C Standby.

HOU You can pass it later.

HOU 12, Houston. One minute to LOS - standing by. This is Mission Control Houston, apparently we have had loss of signal through the Guaymas station. We will be coming up on the tracking ship Rose Knot off the West Coast of South America at - in approximately eight minutes. We will come back up at that time to relay the air-to-ground conversation over that particular station. At 28 hours, 44 minutes, 15 seconds after liftoff, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, at 28 hours, 51 minutes and 42 seconds after liftoff we should be now nearing contact with the Spacecraft Gemini 12 from the tracking ship Rose Knot. We are approximately 10 seconds away from acquisition according to the site acquisition table. We will listen in to the conversation between Spacecraft Communicator Bill Buchholz aboard the tracking ship Rose Knot and the crew of Gemini 12. Standing by for acquisition and telemetry. The spacecraft is GO on the ground is the report from tracking ship Rose Knot. Let's eavesdrop a little.

S/C Roger - RKV

RKV Okay, would like to have you bump up your O_2.

S/C Uh, Buzz would you bump up the O_2 a bit.

RKV Turn your O_2 heater ON please.

S/C Roger, okay - good enough.

RKV We have nothing for you at this time 12, we will be standing by.

S/C Roger - Roger, do you want these heaters put back on the H_2 during the remainder of the area.

RKV Standby 12

Do you want the H_2 heaters on - indicator ON for the remainder of the ... or just switch to it.

HOU Yes, we want to go back to H_2.

RKV Roger - have Buzz put cryo switch in H_2.

RKV 12, RKV - would you read me your cryo switch in H_2 please.

He probably won't get to it South of here, but will teletype the way it is, we will give the information you want presently.

RKV Flight, RKV

HOU Go ahead.

RKV Okay, Mean time 1 with zero on 14.6.

HOU Rog.

RKV Stack one alpha 4.70; stack one bravo 4.46; Mean Time 2 12.8. Stack two alpha 3.54; stack two bravo 4.32.

HOU Okay, Main bus voltage.

RKV Standby one. Brave .. 01. Reads 27.5.

HOU Roger. Was that in the time when the heater was on.

RKV It's right at this time. The heater is on

HOU Okay.

RKV Okay, it looks like his pressure is going back up to around 900 on the meters here.

RKV 12, RKV - you are about one minute to LOS. Would you give me the condition of your heater switch at this time.

S/C Roger - the heater went back to auto, I'll get a reading in a minute.

RKV Roger.

S/C We are reading 70 ...

RKV Say again

S/C Reading 70 on the O_2 pressure.

RKV Roger, Roger.

RKV RKV is LOS Gemini

HOU RKV, Flight.

RKV Roger, RKV.

HOU Send us an Agena Main in a contingency India on the Agena..

RKV Main and an india

HOU Rog.

RKV RKV is LOS Agena.

Both vehicles are GO at LOS.

And this is Mission Control in Houston at 28 hours, 58 minutes, and 21 seconds after liftoff. We have loss of signal on both vehicles over the tracking ship Coastal Sentry. The next station from which we will acquire the two spacecrafts will be the Tananarive voice remoting station and that will be in approximately 20 minutes. We will come up again at that time with any possible conversation from Houston through the Tananarive station. This is Mission Control Houston.

END OF TAPE

This is Mission Control Houston, we're at 29 hours 18 minutes and 43 seconds after liftoff. We should be acquiring the Tananarive voice remoting station. We'll be standing by for any conversation out of Mission Control here with the crew of Gemini XII. Tananarive does have acquisition signal. We are standing by for "Pete" Conrad to talk to the crew. Let's join the conversation now.

HOU Tannanarive over.

Gemini 12, Gemini 12 Houston through Tananarive. Over.

S/C Go ahead Houston.

HOU Roger, need a few things from you before you go to bed, please. Could I have a PQI reading?

S/C Roger. PQI looks about 49 percent.

HOU Roger, 4 9 percent. I'd like your crew status report if possible. I have a node update for you and a couple of other questions when you are ready to copy.

S/C Roger, Houston. Water gun reading 01236, we've got just about an equal amount of water. Finished fuel 8223, completed all three meals today.

HOU Houston copy. 12 This is Houston. You can advise the pilot that Army won 6 to 3 over California today.

S/C That's just getting us set for the big one.

HOU Roger, I've got your node up date if you are ready to copy.

S/C Ready to copy.

HOU Roger, the time is 31:+ 03 + 39 node Rev 2 0 59.1 east right ascension 11 hours, 13 minutes. over.

S/C Roger. time 31 + 03 + 39, node rev 2 0, 59.1 east 11 hours 13 minutes right ascension.

HOU Roger. On the S29. Do you think that you got some pictures withou having hit the airglow? We want to know whether we should schedule another one tomorrow or not.

S/C Say again.

HOU Roger, I would like to know if you think that you've got a good S29 picture or not so we can decide whether to schedule another S29 for tomorrow.

S/C Roger, that's with the airglow, that's the libration report...

HOU Roger, I know it's the libration but you said it went over the horizon and I want to know if you think you got a good picture of the libration point. Over.

S/C Roger, it was in the second series of 30 second one minute, two minute shots that we lost the two minute one, because it was going into the horizon.

HOU Houston, copied. Roger. Did you get that one S6 shot?

S/C Roger, we did. We weren't sure where you wanted us

to get a picture. There were several interesting spots down there so we used the right angle.

HOU Roger. And how is your Agena operating?

S/C Well, it seems to be...

HOU Say again.

S/C ...we're going to ...around here to.....

HOU Okay. You can...if everything is going alright ther's no...you do not have to contact the CSQ if you don't want to. You can go ahead and go to sleep. I talked to both of your wives and they say good show so far and good luck for tomorrow and we'll see ya'll in the morning.

S/C Roger. Roger.

HOU Houston standing by and Good Night.

And this is Mission Control Houston. Apparently that will be the extent of the air to ground communications over this pass, via the Tananarive voice remoting station. Pete Conrads last comment was Good Night. So Good Night it is. The next station to acquire the spacecraft will be the tracking ship Coastal Sentry in approximately 20 minutes. In all likelihood it will be just a ground readout of telemetry indications from the spacecraft and the Agena relayed back to Houston from the Cap Com aboard the Coastal Sentry, Bill Garvin. at 29 hours 25 minutes and 43 seconds, this is Mission Control Houston.

END OF TAPE

This is Mission Control Houston at 30 hours 3 minutes and 3 seconds after liftoff. Gemini 12 and the Agena are now over the Hawaii tracking station where the spacecraft communicator just reported that both the vehicles were GO on the ground. Earlier in this revolution, the spacecraft crossed the tracking ship, Coastal Sentry, at approximately 29 hours 43 minutes GET, where it was reported the crew apparently were still awake and both spacecraft were GO on the ground from Coastal Sentry. Some times for activities tomorrow, the crew is due to wake up at 5:20 am CST, and hatch open time for the umbilical EVA tomorrow morning will be at 9:30 am CST. The members of the Blue Team of flight controllers are beginning to drift into Mission Control Center here to relieve the Black Team. At 30 hours 4 minutes and 8 seconds after liftoff this is Mission Control Houston.

END OF TAPE

This is Gemini Control, 31 hours 23 minutes 33 seconds into the mission of Gemini 12. The spacecraft is in acquisition with Coastal Sentry ship. There is no voice contact as there was not expected to be during this pass, being in a sleep period. It's during the 20th revolution. The astronauts entered the sleep period 29 hours 30 minutes into the mission. They had three meals today. They will end their sleep period 38 hours 40 minutes, for a total sleep period of 9 hours 10 minutes. The OAMS orbital attitude maneuvering system propellent quantity readout are 49 percent, which is right on the money. That's what we expected the OAMS readout to be during the original flight plan. The heartrates are for Lovell 72, for Aldrin 79. Respiration 12 for Lovell, 13 for Aldrin. Dr. Hawkins, the NASA surgeon on duty here at the MCC, indicates that he does not believe they are asleep as yet. To recap the mission so far, very briefly, for the first day, we did have an accomplished rendezvous and docking, which was an aim of the mission. We accomplished the M-408 or the Radiation experiment, measurement experiment. Today, we accomplished standup EVA and also the S-13 experiment was accomplished, which is the star-field ultraviolet astronomical photography that astronaut Aldrin accomplished during the EVA. Also, during today, we have accomplished the S-29 experiment which is the Lunar Earth Libration Regions Photography, the S-11 experiment, which is the Airglow Horizon Photography, the S-5 experiment, Synoptic Terrain Photography and the S-6 experiment, Synoptic

Weather Photography. All in all, with the acception of the high apogee which we had originally scheduled but had to give up early in the mission, the mission appears to be progressing very satisfactorily. Right now the Blue Team is on duty with Gene Kranz acting as flight director. Astronaut Conrad is the only holdover from the Black Team. He seems to be stuck on duty here until around midnight as Cap Com. At 31 hours 26 minutes 37 seconds into the mission, this is Gemini Control.

END OF TAPE

This is Gemini Control, 32 hours, 3 minutes, 30 seconds into the mission of Gemini 12. The position of the Gemini 12 spacecraft at this time is approaching the West Coast of Africa. The Rose Knot tracking ship acquired approximately thee minutes ago. Correction - that is South America. Not Africa. One of those little mistakes that happen now and then here in the Control Center. We have had no voice contact with the astronauts because they are in a sleep period. The heart rates are as follows: Lovell 52 beats per minute, Aldrin 46. Respiration rate: Lovell 14 per minute, Aldrin 12. The Surgeon says that indications are that the crew is sleeping soundly. That information was as of the Coastal station tracking ship. Onboard propellant quantities in the Ohms system are right on the money at 32 hours, 4 minutes, 32 seconds into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control 33 hours 3 minutes 30 seconds into the mission of Gemini 12. The position of the Gemini 12 spacecraft is now approaching Canton Island, Canton should acquire at 33 hours 11 minutes 58 seconds into the flight. The spacecraft is now on it's 22nd revolution. We have had no voice contact since the sleep period began at 29 hours 30 minutes into the mission. They have been in the sleep period therefore for 3 hours 35 minutes. The weather in the prime West Atlantic landing area. The forecast for tomorrow, 7 to 9 foot swells, 5 to 6 foot waves, cloud covered 2,000 scattered to broken, wind 20 to 25 knots from the north. We anticipate the weather in the prime landing area to clear for Monday and Tuesday, the end of the mission. The other areas that - the east Atlantic, the West Pacific and the Mid-Pacific areas are forecast to be good through the mission. At 33 hours 4 minutes 47 seconds into the mission, this is Gemini Control.

END OF TAPE

This is Gemini Control, 34 hours 3 minutes 31 seconds into the flight of Gemini 12. The position of the spacecraft is over Africa. Kano acquired the spacecraft some 3 minutes ago. The astronauts entered their sleep period 29 hours 30 minutes into the mission so they have been in their sleep period now for four hours 35 minutes. We've had again no voice contact with the crew, none was planned. From RKV, from the Rose Knot tracking ship, we have the heartrate on astronaut Lovell, 48 per minute, on Aldrin 44 per minute. Respiration rate, Lovell 14 per minute, Aldrin 12 per minute. The surgeon indicates their really sawing them off up there. Apogee of the spacecraft is now 162.1 nautical miles, perigee 139.6 nautical miles. Bill Anders has replaced Pete Conrad in the MCC as the Cap Com, as of now the tracking station telemetry readings indicate onboard systems on Gemini and Agena look good. This is Gemini Control at 34 hours 4 minutes 44 seconds into the mission.

END OF TAPE

This is Gemini Control, 35 hours 3 minutes 33 seconds into the mission of Gemini 12. The position is approximately approaching the west coast of South America. The Rose Knot tracking ship should acquire the spacecraft by telemetry 35 hours 11 minutes 41 seconds, or some 6½ minutes from now. There is still no voice contact with the astronauts. Their sleep period now is extended to 5 hours and 35 minutes since they went into the sleep period. They are sleeping soundly. Flight director, Gene Kranz, and the flight controllers are currently reviewing the schedule of tomorrows activities. At 35 hours 4 minutes 19 seconds into the mission of Gemini 12, this is Gemini control.

END OF TAPE

This is Gemini Control, 36 hours, 3 minutes 31 seconds into the mission of Gemini 12. The Gemini 12 spacecraft is approaching the east coast of China at this time. The Coastal Sentry ship should acquire the spacecraft some 40 seconds past the minute of about 9 seconds ago. There again will be no voice contact on this just telemetry. The sleep period now stands at 6 hours 35 minutes. There is some 2 hours 35 minutes to go before they are awakened. The last data from Rose Knot tracking ship indicates the heartrate of astronaut Lovell at 43 beats per minute, astronaut Aldrin at 42 beat per minute. Respiration rates are: Lovell 12 per minute, Aldrin 10. Our surgeon indicates that they are indeed still sleeping in a good deep sleep. At 36 hours, 4 minutes, 32 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control, 36 hours, 50 minutes, four seconds into the mission of Gemini 12. We have come up in the last comparatively few minutes with a possible problem on one of our fuel cell stacks. The flight director, Gene Kranz, has directed that the crew be awakened. The spacecraft is in acquisition by the RKV -- the Rose Knot tracking ship, and we will now bring you the conversation with the astronauts.

S/C	.....
RKV	Yes, we'd like to have open circuit voltage check on Two Bravo.
S/C	OK. That's with the stack turned on, right.
RKV	That's affirm.
S/C	Roger. Open circuit voltage is 29.7.
RKV	Open 9.7.
S/C	Yes, it's still going up. It's about 30 volts.
HOU FLT	Hey, Bill, make sure he did that in the warm up position.
RKV	12, did you do that in a warm up position.
S/C	Negative.
RKV	Could you give it to us in a warm up position, please. Flight, RKV. Did you want him to turn the section to warm up or is it just Two Bravo off?

HOU FLT	Stand by. Section Two to warm up.
RKV	Roger.
S/C	I have 30.7.
RKV	30.7 with Section Two in warm up.
S/C	Roger. Section Two's in warm up.
RKV	Roger. Understand. Did you copy, Flight?
HOU FLT	OK. Let's do an 02 purge.
RKV	Roger, Flight. OK. Gemini 12, RKV. Would you do an 02 purge on Section Two. 02 only.
S/C	Roger. You want the section on for that, right?
RKV	..... through a normal purge.
HOU FLT	The section should be on for that. He's correct.
RKV	Roger. That's your static section off.
HOU FLT	Section on.
RKV	That's section on, Gemini 12. Tape dump's complete.
S/C	Alright, just hold up. Will you say again. I thought you said normal purge and then 02 only.
RKV	That's affirmative, 12.
S/C	OK. Two minutes of 02 purge.

RKV Flight, I don't believe we're going to get the complete purge before our LOS here.

HOU FLT Ok, Bill.

RKV Or we can .... real time off if ....

HOU FLT Why don't you leave real time on.

RKV OK. Just let it on -- let him go by with it on.

HOU FLT That's affirmative. We'll tell Canary.

RKV OK. I don't think Canary picks them up this time, do they.

HOU FLT Yes, they do.

RKV Alright.

HOU FLT Give us an LOS summary, Bill. Both vehicles.

RKV Roger.

HOU FLT Say again, Rod. How's the structure current looking?

RKV It's steady at 2.24.

HOU FLT Roger.

RKV Gemini 12, you're just less than one minute to our LOS.

S/C Roger.

RKV Canary Islands will pick you up here in a little while, so they'll finish it all up -- finish it up with you.

S/C Roger. 02 purge complete on Section Two.

RKV Roger. Understand. Purge is complete, Flight.

HOU FLT Roger. Thank you.

RKV So I can go back on with Section Two?

HOU FLT Roger. Let's go back on with Section Two.

RKV Roger. Gemini 12, will you go back on on Section Two now. Well, we have LOS, Flight, I don't know if he got my last transmission.

HOU FLT Roger.

RKV We completed the tape dump here. Do you want us to play it back? -- for any information.

HOU FLT That's affirmative. I want to know ....

This is Gemini Control. You heard that conversation. We're taking a close look at a fuel cell stack that possibly has gone very low or possibly is inoperable. We are estimating the next contact either at Ascension or at Canary Islands. Ascension will acquire at 37 hours, four minutes, 49 seconds into the mission. Canary Islands will acquire at 37:08:40 into the mission. We will continue to keep you advised and stand by until the next station contact. This is Gemini Control.

END OF TAPE

This is Gemini Control 37 hours, 4 minutes, 2 seconds into the mission of Gemini 12. As you know, as we reported, we have awakened the crew at the Rose Knot tracking ship. We had some conversation. There is a possibility of one fuel cell stack in the spacecraft being low in amperage. The complete Gemini fuel cell system, of course, has three stacks -- two, three-stack sections so there are six stacks in the spacecraft; however, Gene Kranz, the Flight Director thought it advisable to wake the crew, check this situation out. Ascension should have contact with the spacecraft 37 hours, 4 minutes, 49 seconds into the mission, which is right about now. We will stand by for any astronaut conversation.

This is Gemini Control. 37 hours, 6 minutes into the mission of Gemini 12. It is possible we will not have contact from Ascension on this pass; however, Canary Islands has been instructed to talk to the crew of Gemini 12. They will acquire 37 minutes -- correction, 37 hours, 8 minutes, 40 seconds into the mission, which is some two minutes from now. We will stand by and come up about 15 seconds before that time to hear that conversation. This is Gemini Control.

This is Gemini Control. 37 hours, 8 minutes, 17 seconds into the mission. We have just been advised by Canary Islands that they have contact with the spacecraft. They will be talking to the crew now.

CRO Flight, Canarys.

HOU Go ahead, Canary.

CRO Stack 2-B is reading 1.08.

HOU Okay. We're going to leave it as is for the time being.

CRO Roger.

Gemini 12, Canary Cap. Com.

S/C This is 12, go ahead.

CRO Okay. How did the purge go?

S/C Purge okay.

CRO Okay. Could you turn your encoder off? The reset timer timed out over the night and I would like to reset a few functions in the Agena.

S/C Roger. Encoder is off. That purge was just section 2 O_2 only.

CRO That's affirmative.

Okay, 12, we've got the Agena resets. You can turn your encoder back on.

Flight, Canary.

HOU Standby, Canary.

Canary Cap Com, Houston Flight.

CRO Okay. We've got the Agena reset, the encoder is back on.

HOU Okay. You could ask him a position of the autometer switches. / After he gives the positions, you can have him turn them both to off.

CRO Roger, copy.

12, Canarys.

S/C Go ahead.

CRO Okay. What's the positions of your spectrometer switches at this time?

S/C They are off.

CRO They are off?

S/C Affirm.

CRO Okay. I've got a PLA update if you are ready to copy.

S/C Ready to copy and do you want a Go/NoGo?

CRO Roger. You had a chance to test the batteries?

S/C Roger. We'll do that after the PLA update.

CRO Okay. They'll catch you with a flight plan update over Kano. Okay, PLA update. Area 27 - 1 Charlie, 41 16 36. 21 + 12. 26 + 41.

Area - 28 - 1 Bravo, 42 49 59, 21 + 07, 26 + 31.

HOU Slow down a bit, Bill.

CRO Area 29 - 1 Abel. 44 25 53, 20 + 49, 26 + 06,

Area 30 - 1 Abel. 46 01 50, 26 + 16, 25 + 34,

Area 31 - 4 Abel. 48 50 30, 21 + 06, 26 + 37.

Area 32 - 4 Bravo. 50 + 26 + 21, 20 + 45, 26 + 10.

HOU Slow down.

CRO Back angle is a roll left 80, roll right 90, roll left 80, roll right 100. Weather in all areas is good. And you need a set maneuver

for all areas. We're just about at LOS. We'll pick you up at Kano.

HOU Kano go remote.

S/C Do we have enough time to give me that area before the last one ...(garbled).

KNO Kano remote and we have acquisition.

CRO Okay, it was 31 - 4 Abel. 48 50 30.

HOU Gemini 12, Houston Cap Com, through Kano.

S/C Good morning there, Houston, 12 here.

HOU Good morning, Jim. We are interested to know whether you guys would like to take a nap for another rev or would you like to eat early and do some S-5 and S-6. Our recommendation would be to sleep, but that's up to you.

Do you copy?

S/C Roger. We slept like a couple of logs last night. We're just about slept out.

HOU Okay.

END OF TAPE

S/C ...we're just about slept out.

HOU Okay. I'd like to give you a correction to the PLA's we've given you so far. On 30 - 1 Alpha, RET 400 K should read 20 + 16.

S/C Roger. Understand. I thought it would be kind of hard to get to rollback before you got to 400K.

HOU Rog. Okay, let me give you a flight plan update here real quick and we can get these other PLA's if necessary here later on. You ready to copy?

S/C Roger, standby one.

HOU Okay, well if you've got your PLA out, I'll give you whatever you like.

S/C Ready for the flight plan update.

HOU Okay. To get your flight plan in kilter, essentially you add 10 minutes to the nominal times. We'd like for you to start an eat period now, and at 38:35 do an S-6 sequence A -- correction, sequence 8 north of track. 38:40, at CYI, we'll give you a Go/NoGo for 45 - 1 Alpha. 38:55 - S-5, mode Alpha, sequence 04. At 40:30 power up platform and gyro compass to 0 - 900, that is 0 90 0 on the Agena. At 41:17, sunrise, platform defree, Agena inertial. 42:47:28, EVA sunrise. Okay,

that's the end of the flight plan update. I'd like a note here before we loose you if stack B -- stack 2B current goes below 1 amp, turn stack 2B off and monitor open circuit voltage until the next site.. And you are holding at 1 amp right now on ground TM.

S/C Rog. We're showing about zero on it now.

HOU You are showing zero?

S/C Roger.

HOU Okay, let's turn it off. Be advised your flight plan is also one rev off. So add one rev and 10 minutes.

S/C Roger, Bill. What was that EVA sunrise time again?

HOU 42:47:28. We've got 30 seconds to LOS. We'll give you the PLA updates at Carnarvon. Could you give me an open circuit voltage real quick. On stack 2. Section 2.

S/C Three zero.

HOU Understand 30.

This is Gemini Control, 37 hours, 18 minutes, 52 seconds into the mission of Gemini 12. You heard that conversation between Astronaut Anders and the crew of Gemini 12. He was remoting through Kano, Nigeria.station. He gave the crew a

flight plan update. To repeat it briefly, 37 hours, 15 minutes into the flight, eat period. 38:35, an S-6 experiment, 38:40, Canary Islands Go/NoGo for rev 45-1. 38 hours, 55 minutes, an S-5 experiment. 40 hours, 30 minutes, power up the platform, 41 hours, 17 minutes, sunrise, 42 hours, 47 minutes, 28 seconds, EVA sunrise. You also heard him advise the crew to add one revolution plus 10 minutes to bring them up to the planned flight plan. Also, the Gemini 12 crew was advised to shutdown the fuel cell stack B, which is now inoperative. This does not indicate a critical situation. We have five stacks left. At 37 hours, 20 minutes, 21 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

This is Gemini Control, 37 hours, 40 minutes, 12 seconds into the flight of Gemini 12. Coastal Sentry now has acquisition of the spacecraft. Gene Kranz, the flight director, is passing instructions on to Coastal Sentry to pass on up to the spacecraft concerning this fuel cell situation. The short recap is the fuel cell stack B, of which we have five stacks, so only one stack appears at least to be inoperable. We will continue to check this out;if it is possible, we will put it back on the line. We will now stand by for Coastal Sentry contact with the Gemini 12 crew.

CSQ	Roger.
HOU FLT	OK, Bill, we'll stand by for your pass.
CSQ	OK.
HOU FLT	OK?
CSQ	..... seconds to go, Flight.
HOU FLT	Roger.
CSQ	Gemini 12, CSQ.
S/C	Go ahead, CSQ.
CSQ	Roger. We'd like to run a little test on the fuel cell. What we'd like you to do is to observe two or three out of each stack current and give us enough time here to get a ground correlation read out so would you give us a

read out on Stack 1 and Alpha.

S/C Roger. One Alpha reads 3 ...

CSQ Stack Two.Alpha.

S/C Two Alpha is 2.3 M.

CSQ Three Alpha.

S/C We only have two seconds.....

CSQ Stand by one. One Apollo.

S/C One Apollo is 3...PIM

CSQ Two Apollo.

S/C Two Apollo is 0, zero.

CSQ Okay, we'd like you to now to measure the .... circuit voltage on two Apollo.

S/C Roger, the open circuit voltage is zero.

CSQ All still low on two Apollo.

HOU Okay, Bill, leave it off.

CSQ Okay. I have a new update for you. .... time is 38:32:53, roll of 25, 55.9 left, right Ascension, 1104. One minute to LOS. I'll transmit you a TX.

S/C Roger. .... 38:32:53, gravity 25, 55.9 left, right Ascension, 1104.

CSQ Roger, roger.

HOU Bill, do you have any Delta P lights up there?

CSQ That's negative.

HOU Negative, no Delta P lights?

CSQ No Delta P lights.

HOU Roger, thank you.

HOU CSQ, AFD. Would you give us an LOS main on Agena?

CSQ Okay.

This is Gemini Control, 37 hours, 46 minutes, 42 seconds into the flight of Gemini 12. We have had LOS from Coastal Sentry. The next contact will be some 40 minutes from now with the Rose Knot tracking ship, off the west coast of Africa. A short recap in revolution 24, it was found that fuel cell stack B was slightly - quite a bit - low in amperage, .98 to 1.08 amps. At that time it was decided to awaken the crew over the Rose Knot Victor and this was done. They have had about five and a half hours sleep. In other words, they were awakened something around one and a half hours early. It was decided to instruct them to shut down fuel cell stack B. The open circuit voltage appeared to be good but it won't pick up any load. This still leaves us with five stacks. They also had a flight plan update which includes the time for EVA, so everything other than the loss of that fuel cell stack appears to be normal. If that fuel cell stack can be, it will be brought back on the line after further checks along the flight path. At 37 hours, 48 minutes, 10 seconds into the mission of Gemini 12, this is Gemini Control.

END OF TAPE

Gemini Control Houston 38 hours, 17 minutes into the flight of Gemini 12. The Gemini 12 spacecraft with Astronauts Jim Lovell and Buzz Aldrin is currently passing over the south Pacific and approaching the RKV ship off the western coast of South America. The crew was awakened during the last pass over the RKV and they are currently in an eat period. Meanwhile, in Mission Control Houston, we are in the process of a change of Flight Controller teams. At the present time, Cliff Charlesworth Flight Director of the Green Team is talking things over with Gene Kranz, who has been here most of the evening. Over the RKV, we might expect some further verification of our fuel cell status. At the present time, stack 2B, that is 2 Bravo, has been shut down. The fuel cell has two sections; this would represent one-sixth of those two sections, comparable to what we had on Gemini 11. We showed low amperage and therefore, shut down the fuel cell stack 2 Bravo. This, again, is a situation similar to 11 where the other fuel cell stacks picked up the power and carried on from there. At 38 hours, 19 minutes into the flight of Gemini 12, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 38 hours, 22 minutes now into the flight of Gemini 12. Jim Lovell and Buzz Aldrin are approaching the outer ring of acquisition with the Rose Knot Victor. The Rose Knot Victor Cap Com will probably advise the crew that he is standing by, and will monitor systems during this pass. We expect little or no conversation during the pass, however. Standing by at 38 hours, 22 minutes, this is Gemini Control Houston.

RKV ...is on.

HOU Thank you.

RKV The Delta P lights are out.

HOU Very good.

RKV The Agena vehicle is go.

The Gemini vehicle is go.

Gemini 12, RKV.

S/C Go ahead, RKV.

RKV Okay, we show you go on the ground here. We have nothing further for you. We'll be standing by.

S/C Roger, we're coming up on an S-6.

RKV Roger.

Gemini Control Houston. We continue to monitor the pass over the Rose Knot Victor. Again, as we stated earlier, we expect little or no conversation during the pass, but we are standing by.

RKV Flight, RKV.

HOU Go ahead, RKV.

RKV The ... current is still varying between 3 and 4 PCM counts on the Agena.

HOU Roger, everything looks good here. We have your first summary.

RKV Roger.

Gemini Control Houston. The voice you have been hearing talking to the RKV, of course, is that of Flight Director Gene Kranz. Mr. Kranz has been in the control center most of the evening, and continues to remain here for a while as the Green shift comes aboard.

RKV Flight, RKV.

HOU Go ahead, RKV.

RKV Are you reading me loud and clear?

HOU Affirmative.

RKV Okay, we'll get into the flight plan here on Hotel Charlie 06, RCS-B source temperature reading 51.2 degrees. And Hotel Charlie 02 RCS-Bravo source pressure reading 2870 psi.

HOU Okay. GMC is watching that. He says that's okay.

RKV Okay.

RKV Flight, 1, 2, 3.

HOU I'm reading you, Bill.

RKV Flight, it seems that when I key my mike here, we come out getting some fluctuation with Agena TM when I'm talking to you.

HOU I'd say you've got a local site problem.

RKV We'll check around here.

RKV 12, RKV. You are just about to our LOS.

S/C Roger.

HOU Let's have an LOS Gemini main, please, Bill.

RKV Roger.
We have LOS Gemini.

HOU Roger.

Gemini Control Houston, 38 hours, 29 minutes into the mission. We've just had loss of signal with the Rose Knot Victor. The next activity, which will involve the crew, is some S-6 photography. This is scheduled to take place in about 10 minutes. They will be shooting sequence 8 pictures; the S-6 photography is synoptic weather, and sequence 8 indicates that they'll be seeking Cirrus bands eminating from a tropical convergence zone. Meanwhile, in Mission Control Houston, the flight controllers in the operations control room on the third floor are quietly going over their flight plans in preparation for a very busy

morning, a morning which will involve the umbilical EVA on the part of Buzz Aldrin. And on the first floor of this windowless building, its business as usual for the real time computer complex. Its 7094 computers are up and humming in support of the Gemini 12 mission, and business as usual to them means 40 billion calculations per day, for a day like today, and certainly this will be the busiest computer complex in the world this morning. The next station to acquire Gemini 12, will be the Canary Islands and this is scheduled to take place in 38 hours, 41 minutes, 13 seconds into the mission. That is some 10 minutes from now. Standing by and continuing to monitor, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 38 hours, 41 minutes into the flight of Gemini 12 at this time. The Gemini 12 spacecraft is currently in an orbit of 161.9 nautical and 139.6 nautical and we have just been acquired by Canary and we'll stand by for conversation during this pass.

S/C Roger, same one.

CYI Okay, we'd like to get a nominal fuel cell purge, section 2 then section 1.

S/C Understand nominal fuel cell purge, section 2 then 1.

CYI Roger, we're standing by for it.

Gemini Control Houston. As you just heard, Canary advised the Gemini 12 crew that they have a go for 45 dash 1 and they're to accomplish normal fuel cell purge, first section 2 then 1.

CYI 12, Canary, sending you a TX.

S/C Roger.

CYI And could we have a PQI, please?

S/C Roger, we're using about, oh, between 48 and 49 percent.

CYI Roger, thank you.

CYI Flight, Canary.

HOU Go ahead.

CYI How about a crew status report?

HOU Stand by. I don't see it scheduled. Hold on.

HOU Canary from Flight.

CYI Go ahead.

HOU We're scheduled for that over ETR next pass.

CYI Okay.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU See any Delta P lights?

CYI Negative, Delta P lights.

HOU Canary from Flight.

CYI Go ahead.

HOU Agena India.

CYI .....Omega, roger.

HOU Agena India.

CYI Roger.

(PAUSE)

Gemini Control Houston, continuing to monitor our pass over Canary. Standing by.

CYI Flight, Canary.

HOU Go ahead, Canaries.

CYI Okay, we've completed the tape dump and he's on section 102 purge at this time.

HOU Roger.

CYI Gemini 12, Canary. Would you move your cryo quantity switch to the O_2 position, please? Thank you. Okay, Gemini 12, would you ... your H_2 tank at this time and move the switch

to the vent position and then to safe?

S/C Roger.

CYI Did you get the vent pull?

S/C Roger, we heard the reaction back there in the ...

CYI Okay, and put your cryo quantity switch to off, and your H_2 heater switch to auto.

S/C Roger.

CYI And we got about 30 seconds to LOS and we'll be standing by.

S/C Roger.

HOU Kano go remote, Canary local.

KNO Kano's remote and we have acquisition.

HOU Gemini 12, Houston Cap Com through Kano, over.

S/C Roger.

HOU Jim, will you move your cryo quantity switch to H_2, please?

S/C garbled

HOU Gemini 12, Houston Cap Com. I'm not copying. Did you read leave your cryo quantity switch in H_2?

S/C We are back in H_2.

HOU Mighty fine.

KNO 30 seconds to Kano AOS - correction LOS.

KNO Kano has LOS.

Gemini Control Houston, 38 hours, 52 minutes into the flight of Gemini 12. We've had LOS over Kano. The voice you heard from Houston remoting through Kano was that of Cap Com Bill Anders. And at 38 hours, 55 minutes into the mission, that's some two minutes from now, the crew is scheduled to take some S-5 Photography. This will be Synoptic Terrain Photography and they will be shooting for an African Rift Valley. At 38 hours, 53 minutes into the mission now this is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, 39 hours, 30 minutes into the flight of Gemini 12 at this time. In Mission Control, the Green team Flight Director, Cliff Charlesworth, has gone around the room and discussed with his flight control team, the various aspects of the upcoming umbilical EVA mission. It all looks good at this time. The surgeon reiterated that sleep on the part of the Gemini 12 crew was something less than 6 hours. Jim Lovell had indicated that he had "all slept out". The Gemini 12 crew, Jim Lovell and Buzz Aldrin, are now in their 25th revolution. We've got a long dry spell between passes as they cross the south Pacific. The next station that will acquire will be Antigua. This will be at 40 hours, 4 minutes into the mission. In the meantime, to bring you up-to-date on some of the activities that happened yesterday, the telescoping handrail which Buzz Aldrin put out yesterday during his standup EVA is in place for today's activity to provide him with ready transportation to the nose of the Agena for tether attachment. This handrail, by the way, is in three two-foot sections. It has got an 8 inch segment which was spring-loaded. It was stowed right inside Aldrin's hatch so he could readily reach it as he started his standup EVA. And it is presently mounted on the half-beam between the two hatches. This is one the spacecraft side, and the other end is plugged into a hole on the docking cone of the Agena. Also, yesterday,

Aldrin mounted the 16 mm EVA camera on the center line between -- behind the two hatches. That is where it will be positioned today. He did this for a couple of reasons. One, this will provide him with a basis of comparison between performing this task with a chest pack on, that is the ELSS on, and without the chest pack. Yesterday, of course, he did not wear the chest pack. Also, this will give him a basis to evaluate some modifications that had been made to the mounting on the camera. The camera mounting O-ring was somewhat swollen during Gemini 11 and had given Dick Gordon a problem or two in his mounting exercise at the start of the Gemini 11 umbilical EVA. Following yesterday's activity, Aldrin did take the camera back in and he will remount it today as part of his tasks. The crew will begin their EVA preparations in about seven minutes from now. This will be during a quiet period and we will have no conversation with them until Antigua. At 39 hours, 33 minutes, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 40 hours, four minutes into the flight of Gemini 12 at this time. Jim Lovell and Buzz Aldrin are approaching acquisition with Antigua tracking station. We expect some conversation during this pass between Cap Com Bill Anders and the Gemini 12 crew. We'll stand by for acquisition which is expected at any moment. Standing by now for acquisition this is Gemini Control Houston.

ANT AOS Antigua.

HOU Gemini 12, Houston Cap Com, over.

S/C Hello, Houston. 12 here.

HOU Roger. That was a pretty lonely pass there, wasn't it?

S/C Yes, it was. Something interesting happened ....(broke off)

HOU We didn't copy Gemini 12, say again. How's that for a cliff hanger?

(PAUSE)

HOU Gemini 12, Houston Cap Com, over.

S/C Go ahead, Houston.

HOU You were cut out after you saw something interesting. What did you see?

S/C We didn't see anything. I said that during our S-5 attempt to photograph on photo sequence 4 we attempted to get spacecraft control and it appears after an analysis of our control system,

that thrusters 2 and 4 are not operating.

HOU Roger, copy.

HOU Gemini 12, Houston. We'd like to have you start a gradual power up by turning on the A pump in both the primary and secondary loops. We'd like to have you leave this on for at least a rev. We'll give you more items over Canary and then we'd like to have you follow your normal EVA prep in flight plan power up. Over.

S/C Roger. Understand that you want us to put on primary A and have both primary B and primary A on at this time. Is that correct?

HOU Negative. Only primary A in each loop.

S/C Roger. Only primary A in each loop going on at this time.

HOU Also we'd like to have you do a 30 second O_2 purge in section 2. We'd like to have you start one now and we want you to do one each rev. We'll advise you when to do them on the following rev. Do you copy?

S/C Roger. 30 second purge in section 2 coming on at this time.

HOU Okay, and we're ready for a crew status report.

S/C Roger, water gun count of 1361. Water consumed

about equal and both eaten meal 3 on day 3 meal ..

HOU Roger, make that a 30 second purge for both sections.

S/C Roger. 30 second purge for both sections.

HOU Roger. Now we'd like to have each one of you try drinking about a pint of water each now and we'll be asking you to drink more as late in the EVA prep as possible, over.

S/C Roger, is this the fuel cell?

HOU Roger.

HOU Also we'd like to have you turn your encoder off now so we can reset your timer.

S/C Encoder off.

HOU Okay, and a note to in order to conserve attitude gas in the Agena, we'd like you to make sure that before you send ACS on, that you kill all your rates.

S/C Roger. You read about our thrusters 2 and 4, did you?

HOU That's affirmative. We're thinking it over.

S/C Fuell cell purge is complete. You say you want me to really load up on the water, huh?

HOU That's affirmative.

S/C How come I didn't get any of this on the ground

debriefing - ground briefing? I was asking these questions before.

HOU We'll give you a briefing when you get back.

S/C I guess they will.

HOU Okay, you can turn your encoder back on again. And can you give us an evaluation of your sleep period.

S/C Roger, sleep period was very good.

HOU Mighty fine.

S/C It must be at least six hours apiece.

HOU Copy.

HOU Gemini 12, Houston. Where is your roll logic at this time?

S/C Roger. Roll logic primary. Okay, you mean your roll jets? They're in yaw.

HOU Roger, understand.

S/C Roger, we've had them both in yaw and pitch. We had them in pitch after initial rendezvous trouble a day or so ago and then we brought them back to yaw.

HOU Copy.

S/C They may have been out for awhile. At least they might have been intermittent. These problems sound a little familiar with some of the things we had....

HOU Roger, understand.

HOU Gemini 12, Houston. You have about one minute to LOS.

S/C Roger.

ANT LOS Antigua.

HOU Flight.

ANT Go ahead, Flight.

HOU You get everything you need now?

This is Gemini Control Houston. We've just had loss of signal at Antigua. The two thrusters referenced in Command Pilot's Jim Lovell conversation - these are OAMS thrusters, 2 and 4, OAMS Orbital Attitude Maneuvering System. He indicated that these thrusters apparently are out at this time or he had an indication that they are out at this time. These thrusters are used for pitch down and yaw left functions; however, we should point out that what this really does, it reduces our control authority by half. It does not eliminate control authority. At 40 hours,15 minutes this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston. We've just been acquired by Canary and we will pick up that conversation now.

S/C ...gyro ...

CYI Your TM switch to real time and acq 8.

S/C TM is real time and acq.

CYI And your cryo read switch to the O_2 position. Okay, we got it.

S/C Roger.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU Two things. Ask him if he's getting anything at all out of thrusters 2 and 4, that is, whether they are degraded or out.

CYI Rog. 12, Canarys.

S/C Go ahead.

CYI Okay. We'd like to know whether you are getting anything out of thrusters 2 and 4 at all. Are they degraded or are they off?

S/C Okay. Here's the sequence we went through. We attempted to patrol the spacecraft to a good position for S-5. We noticed that we were getting a roll every time we put it in a pitch or a yaw maneuver, so we finally went around and checked all the thrusters by turning off all the circuit

breakers, then turning them on one at a time. We put our rate gyros on, checked our needles for deflation. We could also hear the thrusters solenoid open up of course. And both 2 and 4 had no response at all. We had no -- no response, but only those circuit breakers were on. One at a time.

CYI Okay, copy that.

S/C It is difficult to get a good evaluation because we didn't know whether our unusual attitude response to the control maneuver was due to the offset CG due to the Agena fuel aboard or whether it was the thruster powerup and this problem could have existed for some time before it dawned on us what the situation was.

CYI Roger.

HOU Okay, very good Canary, would you ask him to send..

S/C We tried secondary attitude drivers to no avail.

CYI Roger.

HOU Would you ask him to send ACS gains low command 460, please. Do you copy?

CYI Roger. 12, Canarys.

S/C Go ahead.

CYI Okay, would you send command 460, ACS gains low to the Agena please?

S/C Roger.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Flight. It indicates low down here already, but we had to send it anyhow.

HOU Okay, would you give us a PCM count from CA09. Charlie, Alpha 09.

CYI Roger.

Standby one.

Okay, that's 184, and in the O_2 position.

HOU Thank you.

CYI And 193 in the H_2 position.

HOU Say again.

CYI 193 in the H_2 position.

HOU Okay, and we'd like an LOS main Agena.

CYI Roger.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU Okay, we recommend that he open the circuit breakers on TCA-2 and 4.

CYI Open them and leave them open, right?

HOU Affirmative.

CYI 12, Canarys.

S/C Go ahead.

CYI Okay, we recommend that you open the circuit breakers on thrusters 2 and 4 and leave them open.

S/C Okay, thrusters 2 and 4 circuit breakers coming open now.

CYI Roger.

12, Canarys, about a minute to LOS.

S/C Roger, Canarys. We plan on powering up the platform at 40:30, you concur?

HOU Affirmative.

CYI That is affirmative.

Flight, Canarys.

HOU Go ahead.

CYI Okay, looks he turned the platform on just for a few minutes there, and when he did the main bus went to about 25. It was reading about 26 prior to that time.

HOU Was it back off? Did he turn it back off?

CYI It is off now, right. He said he'd power up at 40:30, according to flight plan.

HOU What did the main bus go to?

CYI 25. 25 volts.

HOU How about the current? How about the currents?

CYI Standby one.

Okay, looks like the main bus went up to about 20 amps.-- A and B went up or 2 went up to about 10 or 12 amps.

HOU Say the first one again.

CYI Main bus 1 went up to about 20 amps.

HOU Okay.

CYI Okay, we've had LOS and both vehicles were go.

HOU Roger.

This is Gemini Control Houston. 40 hours, 26 minutes now. We've just passed out of range with Canary. The crew was advised to open circuit breakers 2 and 4. This was done -- this instruction was given since these thrusters are not doing anything at the present time. We felt that there was no point in giving them power. We will indicate again that thruster 2 is used in a pitchdown mode and I believe we said earlier that thruster 4 was used for yaw right. This would actually be yaw left. We will also indicate that these thrusters 2 and 4 -- neither one have a total effect on control authority. There are alternate mains certainly for accomplishing each of these maneuvers. So at 40 hours, 27 minutes, this is Gemini Control Houston.

END OF TAPE

CRO Houston Flight, Carnarvon.

HOU Go ahead, Carnarvon.

CRO Okay, we noticed the Canary summary of total main bus current is a little low. Are we deleting that rule from the mission rule? The 36.

HOU Which one?

CRO The 36 amps minimum for two hours prior to EVA and during EVA.

HOU Not that I know of. Stand by, Jim.

CRO That's 19 dash 3. Carnarvon has acq aid contact Agena.

HOU Roger, Carnarvon.

CRO Showing the Agena at FC-1 plus 90.

HOU Roger.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU What do you show on main bus voltage now?

CRO We don't have solid sync Gemini yet. We're not at AOS. What did you want, total main bus?

HOU Yes, voltage.

CRO Okay. Oh, voltage. Okay. Intermittent signal Gemini. Showing 25 volts.

HOU Say again.

CRO 25 volts.

(Pick up continuation of commentary from Tape 149, Page 1)

Gemini Control Houston, 40 hours, 52 minutes into the flight of Gemini 12. The Gemini 12 spacecraft is now approaching acquisition with Carnarvon tracking. To quickly recap some of the activities that have taken place this morning. The Gemini 12 crew was awakened about an hour and a half early this morning, earlier than the normal flight plan called for. Fuel cell stack 2B is not operative at the present time. This is one of six stacks in two sections in the fuel cell system. We're running about one revolution plus ten minutes ahead of our normal flight plan. This is the case because of the fact that we cancelled or did not do our high apogee orbit on the first day, and also before Antigua it was reported that - during Antigua pass, I should say - it occurred before Antigua. It was reported that two 25 pound thrusters, the OAMS thrusters, thrusters 2 and 4, were apparently down. This will have no effect, however, on our EVA plans for this morning. We're acquiring now at Carnarvon, and so we'll stand by for any conversation which might transpire.

CRO Showing 25 volts.

HOU Say again.

CRO 25 volts.

HOU What are the currents?

CRO 21 and a half amps.. plus one, 13 may plus 2.

Gemini 12, Carnarvon.

S/C Go ahead, Carnarvon.

CRO Okay, we're showing your O_2 pressure is no go.

You're a little low.

S/C Okay, we'll pump it up a little.

CRO Let's get it about 710 onboard.

S/C Very well.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU How about getting us a main when you get the heater on?

CRO Roger.

HOU And an Agena main.

CRO Roger.

CRO We're showing about 780 on cryo O_2 tank pressure. Way below expected. Okay, we also show them on both A pumps. Is that where you want them?

HOU That's affirmative. That's what we did over the states.

CRO I know that, but EVA prep shows secondary B.

HOU Yeh, but we asked him to leave it on until he comes across the states again.

CRO Okay, I'm getting both Delta P lights in section 1.

HOU You have both lights? Or no lights?

CRO O_2 to water in both section 1 and 2. They are on.

HOU Copy, on.

CRO Okay, the O_2 tank pressure is coming up pretty nicely. It's 740 - 840 correction.

HOU Did you send us a Gemini main, Carnarvon?

CRO Roger.

CRO We're showing about 39 amps total spacecraft current.

HOU Say again, please.

CRO Showing about 39 amps total spacecraft current.

HOU Okay, does he have the heater off now?

CRO Oh, no. It's still on.

HOU The summary shows 44 and a half.

CRO Okay, we just got a readout. You're correct.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU Ask them if they have Delta P lights also. I'm sure they have.

CRO Roger.

CRO 12, Carnarvon.

S/C Go ahead.

CRO Roger. Confirm you have Delta P lights section 1 and 2 ... the water.

S/C Roger, we have.

CRO Okay.

HOU When did they come on?

CRO When did they come on?

S/C Oh, I'd say about fifteen minutes ago.

CRO Okay, thank you. We show your O_2 quantity is go and O_2 pressure is go at 875 ground readout, and except for your integrity check and all that your spacecraft current is go, your go for depress.

S/C Okay, we'll continue now with the EVA prep.

CRO Roger.

S/C Carnarvon, we're just going to recheck with you but we have sunrise egress time of 42:47:28. Do you confirm?

CRO That's affirmative.

S/C Roger.

CRO We've had LOS Gemini and Agena. All systems were go at LOS.

HOU Roger.

Gemini Control Houston, 41 hours now into the flight. We've just had loss of signal over Carnarvon. The next station to acquire will be Grand Turk. This is at 41:37 into the mission. So we'll have no conversation for awhile with the crew as they make their way on the 26th revolution across the southern Pacific. At 41 hours and one minute into the flight of Gemini 12, this is Gemini Control.

END OF TAPE

Gemini Control Houston, 41 hours 21 minutes now into the flight of Gemini 12. The Gemini 12 Spacecraft with its crew, Jim Lovell and Buzz Aldrin, is passing over the South Pacific now on its 26th revolution. This is a quiet time in the mission since we do not have a station contact again until we reach Grand Turk. One point of clarification, this regards the instruction given to the crew to drink more water, this was brought to pass for a couple of reasons. One it will assist in disposing of fuel cell water, two we have a surgeon input here also. The surgeon feels that it is most desirable that they do drink water prior to the extravehicular activity. This is particularly identified since there are other means of venting or disposing fuel cell water. At the present time the Gemini 12 crew, Lovell and Aldrin, are very much in the midst of their preparations for the umbilical EVA. It won't surprise us in fact we'd rather expect that they will be quiet tight lipped in future conversations on our passes down the line. This is particularly so when you consider the camera gear, the 25-foot umbilical, the chest pack, miscellaneous other equipment they've got a precision job of arranging on their hands. Also one term crosses up in the flight plan - crops up in the flight plan checklist. This is a clothes line. This will be strung in the cabin as the name implies, to attach cameras and other gear which might otherwise float outside the hatch during the EVA. One item that Aldrin does not plan to do even if they get ahead in the EVA preparation and that is to go on his ELSS or chest pack system early. Dick Gordon did this and was hindered somewhat because of his efficiency

in doing so. The water boiler in the chest pack doesn't work except in a vaccum. So it will be around the time of depressurization we're sure before Aldrin switches to his ELSS.
At 41 hours 24 minutes into the flight of Gemini 12 at the present time, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 43 hours, 38 minutes, and we've acquired over the Eastern Test Range and we'll pick up the conversation now.

S/C .. correlation between drinking water and those lights.

HOU You say negative correlation?

S/C I said there is a definite correlation between drinking water and those lights.

HOU Understand. You feel that the ..

S/C Everytime that we use water to prepare the food, or drink quite a quantity of it, the lights go out.

HOU Roger. We have indication here on the ground that you drank water after the Canary pass and before Carnarvon and the lights came on prior to Carnarvon. Is that correct?

S/C Rog. The lights were on at Carnarvon. Prior to that, they came on.

HOU Roger. Did you drink prior to their coming on?

S/C I believe it was after, Bill, I'm not sure.

HOU Okay. With respect to the Agena control situation, just a little rundown here. As you know, we are -- the Agena's heavy with fuel and therefore, has a pretty high moment of inertia. This results in

effectively low ACS control authority, and in order to avoid any high gas usage, and with your control problem, we'd like to recommend that you use rate command when you attempt to kill all rates prior to turning ACS on. You understand?

S/C Roger. We are now inertial. As for the flight plan, and we'll stay in this condition until after EVA.

HOU Roger. We suggest using rate command after EVA. Also, we'd like to have you each drink another pint or so of water as late as possible in the EVA prep.

S/C Houston,12, here. What is the reason behind this. Is it for the fuel cell or for body conditioning?

HOU We're trying to condition the fuel cells.

S/C Yeah, well I'd just as soon not get super saturated with water when I'm going to be exposed to a warm environment.

Why don't you check that out?

HOU Stand by.

S/C Right now, I think I've been drinking an adequate amount of water to get through the day's activities.

HOU We agree with that;if you can drink any water it'll help us out fuel cell wise.

S/C Okay, I'll -- I'll sacrifice.

HOU Roger. If you can get rid of any that might help.

S/C I'll take care of that, too.

HOU Okay. Also, if it is convenient for you, we'd like for you to fix the S-3 frogs on your mark. That's just one unit.

S/C Roger, can you read me?

LOVELL Can you read me now?

ALDRIN Yeah, what did you do?

LOVELL I don't know. I just heard something click.

HOU Gemini 12, did you call Houston?

S/C Roger, I thought I'd lost communications here for a minute. Are you ready for the unit one?

HOU Roger. On your mark.

S/C Houston, 12, do you read?
Do you read me, over?
Houston, 12.

HOU Go ahead.

S/C Did some switch get hit maybe?
Houston, 12.

HOU Roger, read you five by. How me, 12?

S/C Roger. We're having an intermittent problem here with electrical switches, I guess because

you're -- we're losing communications. Would you let us go back on ...

HOU Right. Looks like your keying switch was stuck. You can fix unit one in the S-3 on your -- convenience. On your mark.

S/C Roger. Can you read me now, Houston.

HOU Read you five by.

S/C Houston, 12, can you read?

HOU Roger, that's five by and we're not getting biomed. You might check your lead and your circuit breaker.

S/C Okay. How about now?

HOU Looks good.

S/C Okay. Unit one. On my mark. 3, 2, 1, Mark.

HOU Mighty fine.
Gemini 12, Houston, over.

S/C Go ahead.

HOU Roger. We'd like to get your feeling on how you feel about the possibility of dumping some water through the urine system if possible.

S/C Well, we might do it after EVA, Houston. We're in the middle of EVA prep now.

HOU Okay, we won't bug you on that then.

S/C Yeah, we've got gear all over the cockpit, you know, as per standard procedure.

HOU Roger.

HOU Gemini 12, Houston. One minute to LOS.

GTI LOS, Turk.

(pause)

Gemini Control, Houston. We've just had LOS over Antigua. The lights referred to by the crew during this pass is the Delta P light and when this light is on it indicates an oxygen overpressure relative to water. We are standing by now for acquisition at Canary. We expect to acquire some two minutes from now at 41 hours, 51 minutes into the mission. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 41 hours 52 minutes now into the flight. We are coming into Canary now and expect conversation with the crew momentarily.

HOU Oxygen only

CYI Oxygen only, roger.

CYI Gemini 12, Canary Cap Com.

SC Go ahead

CYI Okay, we would like to get a 30 second 02 purge only on both sections if you have time.

SC Roger

What purge do you want first Canary?

CYI One

SC What section do you want first?

CYI One

SC Section 1. Section 1 coming up.

CYI 12, Canary. Your 02 pressure is coming down a little bit, do you want to bump up to 90 degrees please?

SC Roger, it came right down when we were checking out the ELSS. I've got the heater on now, we're building it up.

CYI Roger.

SC Purge complete.

CYI Roger.

HOU Canary, from Flight, send us another Gemini main and do you still have delta P lights?

CYI That is affirmative.
Okay, his cabin pressure is up to about 5.61 but I think that is from the ELSS checkout.

HOU Roger.

HOU Canary from Flight, and Agena bravo please.

CYI Roger
Flight, Canary

HOU Go ahead

CYI Okay we are getting some real weak radar signals this pass. I don't think you're getting any C-band off of it.

HOU Roger.
That is probably because of the antenna at Canary. They probably got it rolled over.

CYI Roger.
12, Canary, you're about one minute to LOS, your 02 pressure is looking real good now.

SC Roger, well we'll stop it here.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead Flight.

HOU You've just about had LOS, I'll catch him over Kano.

CYI Okay

CYI He was about 900 on 02 pressure when he cut it off.

We've had LOS both vehicles and both were GO.

HOU Roger, GO.

FD Kano go remote.

KNO Kano is remote and we have acquisition.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead Flight

HOU You saw everything okay for depress is that correct?

CYI That is affirmative.

HOU Thank you. Gemini 12, Houston Cap Com, through Kano. Standing by.

SC Roger, Houston.

HOU Roger, Gemini 12. Be advised that you're performance curves on your remaining stacks have been looking good since power up.

SC Very good.

Houston,12 here.

HOU Go ahead 12, we read you weak.

SC Houston, Gemini 12.

HOU Roger 12, go ahead.

SC Roger, would you ask Chris for another bedtime story for me, I kind of miss them since the last flight.

HOU Roger, we'll have one for you.

HOU We may be able to do better than that.

END OF TAPE

HOU You may be able to do better than that.

(PAUSE)

HOU Gemini 12, Houston Cap Com. One minute to Kano LOS. Have fun on your EVA.

S/C Rog. Thank you very much. Will do.

HOU Roger.

KNO Kano has LOS.

Gemini Control Houston, 42 hours, five minutes into the flight of Gemini 12. That was Cap Com Bill Anders who advised the Gemini 12 crew during the last minute of that pass to have fun on their EVA. During the first daytime pass while Aldrin is attaching the Agena tether to the spacecraft docking bar, Aldrin will move down the handrail which he attached yesterday. As he proceeds to the nose, he'll hook his left tether to an attach point on the end of the second telescoping section of the handrail. He'll hook his other tether to one of the rings on the Agena docking bar. While attaching the tether he will be essentially with his head over the docking cone and his feet toward the spacecraft window. This will be on the right side. He'll take on the appearance of a swimmer rather than the ride 'em cowboy type approach of Dick Gordon who performed the same task. We're evaluating different kinds of restraints on this flight today to maintain stable body positions. This is done to avoid the floating up and away effect from a work position. Aldrin will

evaluate the handrail which he'll move down. He'll be wearing two waist tethers wrapped under the lower strap of his parachute harness. These are made of nylon parachute webbing and they can be varied in length and have hooks on either end for attachment to the rings on the TDA and to the handrail. Back at the adapter work station he'll evaluate foot restraints which closely resemble or have been described previously as looking like Dutch shoes. These were carried on Gemini 11 but they were not used. They have performed well in simulations. Aldrin will carry forward a set of handholds from the adapter when he proceeds to the Agena work station. And he will evaluate these by sticking them on the Velcro. And for Gemini 12, our EVA plan is laid out in such a way that no individual task is vital to future events in the mission. If a single task proves to be too difficult, Aldrin will probably bypass it, going on to the next item. We want to see the degree of difficulty associated with each of the assignments as well as the degree of ease in which they can be performed, because it's just as important to know what's hard as it is to know what's easy. Now Aldrin does have regularly scheduled rest periods throughout the umbilical EVA and in the Gemini 12 ground rules, he can also stop and rest if he feels a need to do so. This is just like an athletic team that would call a time out. At 42 hours, 8 minutes, our next station to contact will be Carnarvon. This is at 42 hours, 26 minutes, 57 seconds and we will pass that conversation on to you as it transpires. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 42 hours, 26 minutes now into the flight of Gemini 12. Jim Lovell and Buzz Aldrin are on their 27th revolution and approaching acquisition with Carnarvon tracking station. Over Carnarvon, we expect the Go/NoGo message for cabin depressurization and hatch open. And we are making contact now, so we'll stand by for conversation over Carnarvon.

CRO Carnarvon has Gemini contact.

HOU Roger.

CRO Gemini 12, Carnarvon. We are checking out your systems now.

S/C Roger, Carnarvon.

HOU Carnarvon, from Flight.

CRO Go ahead.

HOU What did you show as the pump configuration?

CRO Both A pumps.

HOU Both A.

CRO That is affirmative.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU Agena Bravo.

CRO Roger.

12, Carnarvon. Have you completed your suit integrity check yet?

S/C This is 12. The command pilot has, the pilot has not. We're still getting ready for it.

CRO Okay.

S/C I'm pumping up the oxygen a little bit. We are already on depress and ELSS both.

CRO Okay.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU Just remind him that he has both A pumps and to go ahead as per checklist as far as pump configuration. I think that comes later.

CRO Okay.

HOU You understand?

CRO Roger. 12, this is Carnarvon. We're indicating here on the ground both A pumps in primary and secondary loops. We just want to remind you to just continue on with your checklist.

S/C Roger. We have both primary A pumps on. Is that correct?

CRO That's the way you are right now, but do it as per checklist.

S/C Roger.

HOU Carnarvon from Flight.

CRO Go ahead.

HOU A Gemini Bravo.

CRO Roger.

HOU Do you have our lights?

CRO Say again.

HOU Do you have Delta P lights?

CRO That is affirmative.

HOU Roger.

CRO 12, Carnarvon. Confirm you are on manual O_2 heater.

S/C That's affirmative. I am, but it doesn't seem to be pumping it up much. We have the repress open of course.

CRO Okay.

S/C It's holding about 620.

CRO Roger that.

S/C You want us to go off / repress and pump it up?

CRO Just follow your check list.

S/C Roger.

CRO Flight, Carnarvon.

HOU Go ahead.

CRO Okay. It seems with that O_2 manual heater on he's not doing any good with that repress open. I told him to continue on with his checklist. It calls for closing it a little later after the integrity check.

HOU Roger.

Carnarvon, from Flight.

CRO Go ahead.

HOU Send us a main, Gemini and B's, Bravo.

CRO Roger.

12, Carnarvon, we have one minute to LOS. All your systems are go with the exception of your cryo O_2 pressure. Just keep a close eye on that thing and get it up to 710 onboard before EVA.

S/C Roger. But it doesn't seem to be going up, Carnarvon. I left the manual O_2 heater on.

CRO Roger. It'll probably go up when you close the repress.

S/C Roger.

HOU Carnarvon, he's go as long as it is not going down.

CRO Roger that. You're go for depress just as long as that pressure does not decrease, 12.

S/C Roger, Carnarvon, but it is not increasing at all, with the manual O_2 heater on. It is still just about repressing.

CRO Roger. Looks like its going down Flight. Flight, Carnarvon.

HOU Go ahead.

CRO Roger. We've had LOS both vehicles.

HOU Roger.

CRO And it looks like that O_2 tank pressure is going down. Started at 735, 730, LOS short about 711.

This is Gemini Control Houston, 42 hours, 36 minutes now. The next station to acquire the Gemini 12 spacecraft will be at 43:08 and this will be over Texas. Now the Gemini 12 spacecraft will be passing well to the south of Canton and Hawaii tracking. However, the hatch opening is presently scheduled for 42:47:28 with cabin depress some three minutes earlier. Our first opportunity to confirm whatever activity has transpired with the EVA will be over Texas. We will acquire Texas at 43:08. At 42:37, this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 42 hours 48 minutes now into the flight of Gemini 12. At the present time we have no contact with the Gemini 12 Spacecraft. Our last contact was over Carnarvon. However, if Gemini 12 is holding to the present or to the flight plan schedule, the cabin depressurization would have occurred by this time. We would expect hatch open time to have occurred. The countddown clock in Mission Control is counting up on the assumption that it did occur. However, we will not know the exact status until out next station contact and this contact will be at 43:08; 43 hours and 8 minutes into the mission over Texas. At 42 hours 49 minutes this is Gemini Control Houston.

END OF TAPE

GEMINI 12 MISSION COMMENTARY, 11/13/66, 9:42 A. M. CST

Gemini Control Houston, 42 hours, 55 minutes into the mission of Gemini 12 now. The Gemini 12 spacecraft is still proceeding across the South Pacific out of contact - out of station contact - at this time. The bottom countdown clock in Mission Control reads 13 minutes, six seconds at this time. This clock indicates time of acquisition to our next station contact. This station contact will be Texas. At that time Bill Anders will be in contact with the crew. Bill Anders, the Cap Com, has been back frequently talking with Flight Director Cliff Charlesworth. This has been a frequent occurrence in Mission Control. The Cap Com by the nature of his profession as an astronaut is quite active. He's on his feet perhaps more often than the other Flight Controllers here in Mission Control. Also, his console is directly in front of that of the Flight Directors. Often they have over the desk consultations before passing word along to the crew. This is interesting activity to watch. It's much like splitting the duties of a quarterback on a football team with the Mission Director and Flight Director calling the plays and the Cap Com passing on the signals from Mission Control. 42 hours, 56 minutes into the flight now. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 43 hours 9 minutes now. We are acquiring over Texas and we're standing by. This is remoted through Corpus Christi and we're standing by.

Gemini Control Houston we have conversation going on now with the Gemini 12 crew and we'll turn to the conversation.

SC Roger we're just ahead of my field of view over it.

SC I probably will when I do a little on the ELSS.

LOVELL Say Buzz, where did you get that blue pack on your back?

Where did you get that blue pack on your back there?

ALDRIN Blue pack huh.

LOVELL Okay, here's ....a little difficult

ALDRIN No, it's a little tight.

LOVELL Okay.

ALDRIN Are you preparing it now .....

LOVELL Okay good.

ALDRIN Okay let me open it and .....out

LOVELL Open her up.

ALDRIN Open and I'm going to leave it .....

LOVELL You have it opened and deployed.

ALDRIN I think the best thing to do is push it straight out, it seems to be locked better that way.

LOVELL Okay

ALDRIN Must make sure it is not going to come loose.

LOVELL Yes.

ALDRIN Even though you make complete PPS burn, if they do anything with it, it'll fly down.

LOVELL Are you still cold?

ALDRIN I am still cold.

LOVELL Okay, sounds good.

HOU Roger, sounds good.

ALDRIN I am going to take the velcro off the S-10 even though I'm through with it, ...
just another little bonus.
All right the velcro is off..

LOVELL Okay velcro off of the S-10,.....
Okay, I see.... listen before I have you go ahead of the game here, why don't you just take your tether and go around to the work base a little bit and we'll get a couple of shots while you rest.

ALDRIN All right.

LOVELL He's getting in a good position for photography now.

HOU Gemini 12, Houston Cap Com, could you turn your heater to auto please?

SC Roger, thank you.

ALDRIN Well let's see, I think maybe I'll move this tether out to the other ring, that looks a little better.

Okay, how is that for position?

LOVELL Perfect

ALDRIN ~~Don't~~ let me kick that S-10.

LOVELL Pick your feet up.

ALDRIN Okay, what you really don't want to do is hit the handle.

LOVELL I'm having a harder time getting the camera up to the window then you are I think.

ALDRIN Okay.

Houston, how much longer on this pass do we have with you?

HOU We got about another 10 minutes worth Buzz.

ALDRIN Okay.

LOVELL Okay, why don't you just rest here for a couple of minutes Buzz? I will try to turn it back here shortly, we're - we got time to go through the effort.

HOU Everything is looking real good here Gemini 12.

SC Hey point it towards the camera I might still have some film left.

SC Houston, this is 12 here. I have a couple of messages for you.

HOU Ready to copy.

ALDRIN Roger, to commemorate our launch day on November 11, I have an emblem here that I would like to leave in orbit. It says November 11, Vets Day

LOVELL Stay right there Buzz, hold it a second

HOU Roger copy, November 11 Vets Day

ALDRIN I'd like to extend the meaning of it to include all of the people in the world who have been and are now and will continue to strive for peace and freedom in the world.

HOU Mighty fine.

SC Okay, Flight you are doing a good job.

ALDRIN However, I've got another one here. This message that I have concerns a contest coming up in the future. I think the precedent was set for this about a year ago. I'm not sure that Jim can read this one, so I will read it out loud to you so you can all hear it.

GO ARMY, BEAT NAVY.

HOU Roger, understand. Beat Army.

ALDRIN I knew we had the wrong Cap Com on there.

HOU It's no sweat.

LOVELL Always a guy with a large mouth.

ALDRIN You're not taking pictures there friend

LOVELL Camera just broke.

Okay, I'll get a picture of it just a minute standby.

That's a nice job, I hate to tell you that.

ALDRIN You got it, how about the other one.

LOVELL Oh, I got it.

ALDRIN Okay.

I'll just leave this up here.

LOVELL Okay, I'll give in, it's about time for us to come back.

Okay, let me put the cover on this Maurer camera here for a second.

HOU Everything is looking good Buzz, guess you slowed down a little.

ALDRIN What a beautiful view.

LOVELL Yea.

SC We're completely upside down now

HOU Roger

END OF TAPE

HOU — Roger.

S/C — garbled.

HOU — Gemini 12, Houston. Everything is looking real good. Coming down nice.

ALDRIN — Okay. My feet are still cold.

HOU — Roger.

LOVELL — Okay, Buzzeroni. How do you feel?

ALDRIN — Great. Let me get one more portable handhold deployed out here.

LOVELL — Take a rest, maybe?

ALDRIN — Well, I don't want to risk it now going back to the adapter. I think I'm just about out of film.

ALDRIN — That Velcro holds pretty well.

ALDRIN — Okay, let's go.

LOVELL — All right. Now you'll have two handholds supplied - portable handholds - supplied up on the nose, two pip-pins standing by.

ALDRIN — Right.

HOU — Gemini 12, Houston. If you have a chance on your way back you might glance over your left-hand side and see if you see any ice on the H_2 vent. That's on the Command Pilot's side.

ALDRIN — I sure do. It's about, oh, six inches high in the form of a bush sort of a, icicling out radially. It's about, oh, eight inches across and it's pure

white.

HOU — Understand, six inch bush.

ALDRIN — Jim, I think this clamp here might possibl have come loose while I was using it as a handhold.

ALDRIN — I don't think it should be used as a handhold.

.....

LOVELL — Understand.

ALDRIN — And I'm going to use the Velcro on the top of the ELSS to hold this open.

LOVELL — Okay, this Maurer camera sure beats the Hasselblad for taking pictures of EVA here. I can get up to the window.

LOVELL — Well, I'm glad it (interrupted)

ALDRIN — ...wondered about that.

LOVELL — Yeh.

ALDRIN — All right, I'm working my way back along the handrail now.

LOVELL — Okay.

ALDRIN — How's the umbilical look, nice and clear?

LOVELL — Well, it's 35 now, Buzz, so we better go.

ALDRIN — Okay. Something's clicking out here on... just a few minutes.

LOVELL — It is on?

ALDRIN — It's not on.

HOU — Gemini 12, Houston Cap Com. One minute to LOS,

about 20 minutes to sunset.

LOVELL Roger. Come on Buzz, let's go.

ALDRIN Okay.

LOVELL Quit horsing around.

LOVELL Back in the hatch.

HOU Roger.

LOVELL Now he's working on number 1 on the .. list.

HOU Roger.

LOVELL Okay, now have retrieved your 16-mm camera.

HOU Three minutes to Canaries.

S/C Roger.

ALDRIN Okay, here's the camera. Got it?

LOVELL Okay, give it here.

ALDRIN Wait a minute. Okay, I think it's free now.

This is Gemini Control Houston, 43 hours, 24 minutes now. The Gemini 12 crew has as was indicated in our conversation is moving along very well. They're right down their time lines on this dayside pass. The Agena tether we read had been attached. The heart rates have been right down the middle as far as the Surgeon is concerned here. There was one slight peaking up. This is when he gave an indication consistent with our ground rules to stop and take a brief rest. They've been ranging in the area of 120 and below in the case of Pilot Buzz Aldrin who's currently on EVA. We're standing by for our next station. Our next station will be Canary at 43:26:26. That's

approximately a minute from this time. This is Gemini Control Houston.

HOU Houston Surgeon Aeromed 1.

(PAUSE)

LOVELL Buzz, the umbilical .... before you start back it will get tangled. Before you go back.

S/C Okay, Flight, Canary.....get the ELSS and the chestpack fastened.

CYI Okay.

HOU Good, Canaries.

CYI Okay, he's about 760.

S/C All right, that seems to be fairly secure.

HOU Okay, stand by.

LOVELL Okay, go ahead and bring her down.

ALDRIN Okay.

HOU Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

HOU Okay, in about one minute have him put the heater on manual on and watch it through the pass.

CYI Okay, looks like he's turned the heater on already. It's coming up a little bit.

HOU Okay.

CYI Gemini 12, Canary Cap Com standing by.

S/C Well, we have all of the umbilical out the hatch now.

LOVELL Okay, move to the nose, Buzz.

ALDRIN Moving from the portable handrail back to the retro handrail now.

LOVELL Okay.

ALDRIN I'm putting one hand over the other, Jim, just getting myself going with a little momentum.

LOVELL ELSS still high, right?

ALDRIN The ELSS is still high. I can see that the EVA light is on.

LOVELL Okay.

ALDRIN I'm back at the big tail now.

LOVELL Okay.

ALDRIN Getting set to turn the corner.

LOVELL Okay.

ALDRIN Turning the corner.

LOVELL Okay.

ALDRIN Going around the edge.

LOVELL Okay.

ALDRIN Tieing the umbilical ... the big tail.

LOVELL Okay.

ALDRIN It's through the big tail. ... sights.

LOVELL Okay.

ALDRIN Is it straight now.

LOVELL Yes, it's fairly straight from here.

ALDRIN Okay, that's good. I'll just leave it there.

LOVELL Okay. ..... 41 minutes now, Buzz.

ALDRIN Good show.

LOVELL And I want you to be .....

END OF TAPE

S/C I'll see about it.

S/C Okay.

S/C I want to be positioned with feet in foot restraints.

S/C I'm going around now.

S/C Okay.

S/C And it looks like both lights are working.

S/C Okay. Both lights working huh?

S/C The umbilical goes behind you and you get your feet in the foot restraints.

S/C Fine.

S/C Hey, easy, easy, you're shaking up the whole spacecraft.

S/C Okay, left foot is in the foot restraint.

S/C Sounds good.

S/C And the right foot's in.

S/C Okay.

S/C At your convenience, ...(garbled).

S/C And we want this in one degree per second. 150, that's right?

S/C Yeah, if you want to get some night shots on this pass, I'll be glad to position for that.

S/C Well, I don't think we're on an experiment now. It doesn't want to go in as easily as I would have liked. As a matter of fact, it isn't going in easily at all.

S/C It's fine.

S/C I don't see what the problem is other than this beam is sticking out quite a ways.

S/C What seems to be your problem back there?

S/C Would you believe that the linkage is broken in the .. bracket?

S/C Is that right.

S/C Wait a minute, maybe I can do a little repair work here. Ah, how about that? It's in. But the linkage is broken, I'm pretty sure.

S/C How about resting for a little bit?

S/C All right, I got the plug in.

S/C Okay, it's 44 minutes, we'll rest for 2 minutes.

S/C I have the UV camera filt changed and the other one to do.

S/C What do you see back there? Is everything okay?

S/C Everything looks good. Can you see anything up front?

S/C Right. They don't seem to have a tendency to come out, but that heel seems to be up a little higher in some places than anticipated.

S/C Did you start the Camera?

S/C No I didn't.

S/C You didn't turn it on did you?

S/C I'll turn it on now for you.

S/C Well, wait a minute. Have we got enough time?

ALDRIN Yes. We're going to leave there/at sunrise, so we've got 48 minutes. But I'll hold off a second.

LOVELL Yeah. There's nothing to take a picture of right now and besides, if we've got it oriented I'm afraid it would be way overexposed.

ALDRIN Okay. I'm (garbled)...12

ALDRIN The neutral position that I have is just -- just about at position where my -- both hands would be freely in position to grab the hand bars, -- the hand bars, you know.

LOVELL Yeah.

ALDRIN And that's just primarily a suit position. Now if I move a little forward toward the workstation, I have just a very small tendency to come back, but you know can put a suit in several different positions and they'll stay. I'm going to lean back now. I am leaning straight back and I'm almost parallel with the -- my back is parallel with the longitudinal axis now. And this is a little bit harder than it was under water. A little bit more leg force. I'm looking right down and we're going right over the desert. I guess this is Africa, huh?

LOVELL I think so. Hey Canarys, are you still with us?

CYI Roger, got about a minute to LOS.

LOVELL Okay, why don't you just inquire into Houston sometime at your convenience about the next exercise which is the tether experiment with these thrusters and Buzz and I will just put in these ... and gone on upstairs.

CYI Roger. Copy that Flight?

HOU Negative, say again.

S/C (garbled)

CYI Gemini 12, you want to know all about the thrusters for the tether exercise, is that correct?

S/C Yes, the tether is attached and I just want to know what their thinking is on using 2 and 4 or just what they want for this exercise ... (garbled).

CYI Roger. We'll pass that on. Flight Canarys.

HOU Go ahead.

CYI Okay, he wants to know about the use of thrusters for the tether exercise, whether they are going to use 2 and 4 or not and we've had LOS.

HOU Okay. Kano remote.

S/C I don't have my checklist.

KNO Kano is remote and we have acquisition.

HOU LOS main, Canary. Gemini.

ALDRIN I'm changing cameras now. I'm changing the film for this -- this side camera up there.

LOVELL What?

ALDRIN The side camera.

HOU Gemini 12, Houston Cap Com through Kano. Everything is sounding great on the ground.

ALDRIN Okay. By far the hardest job was putting in this camera here.

LOVELL Okay, Buzz.. uh..

ALDRIN It may not come out.

LOVELL Okay, pull the umbilical cord so it doesn't slip in the handrail.

ALDRIN Already done.

LOVELL Install the penlight and actuate the guidelights on the handbars.

ALDRIN Roger.

HOU Gemini 12, Houston Cap Com, through Kano and standing by.

LOVELL Roger, Houston. We're down to where we're going to start the adapter workstation task. I'm in the process of changing film on my lefthand camera, which is no mean task. It's pretty difficult as a matter of fact. Buzz is standing

by. He's going to be tied up with equipment pretty soon.

HOU Roger. Everything is looking real good.

ALDRIN I don't know whether you heard through Tananarive, I had a problem with the camera. Looks like the linkage in the bracket was broken. I was able to stick my finger in underneath it and get it to work properly, so it is now installed. There may be a problem getting the camera off.

HOU If you have a problem taking it out, maybe you can remove the camera from the bracket.

LOVELL Yeah.

ALDRIN I've got both penlights out now. Incidentally, one of them looks like it was heating up a good bit. The glass on the front or whatever it is bulged out a good bit.

LOVELL Okay, Buzz, start your camera.

Okay, you got all the switches?

ALDRIN All but the ...(garbled).

LOVELL All right. ...(garbled).

ALDRIN Wait a minute. When I push it in, it starts to move. All right. Let me see if it's going now. Keeps taking pictures but the bracket is fairly free to swivel. No wait a minute. I'm getting it started. It's taking pictures.

LOVELL Okay, if you want to, Buzz, why don't you rest for two minutes because I want to change a tape, and this is a good time to change it.

ALDRIN All righty.

LOVELL Believe it or not, this is going to get tiresome pretty soon. I want to change it before it gets started.

ALDRIN I'm getting a slight warm posterior. The sun is setting very agreeably. It's great from a visibility standpoint, but it's not too good from the heating standpoint. It's still plenty cool, but it is getting alittle warm.

HOU Roger, that's the sunning effect.

ALDRIN Yeah, the sun ...the sun on Cernan.

END OF TAPE

Lovell Ok, new voice tape installed.

Aldrin It sure gets bright back here with all the sun.

HOU Gemini 12, Houston. I'd like to remind you to check your manual O_2 heater.

Lovell Roger, I'm at 17 now, I'll turn it off a little bit.

HOU Roger

Lovell Ok, Buzz, are you rested?

Aldrin Ok, as I press myself down against the bottom of the suit I can feel the zipper a little bit on the warm side.

Lovell How do you like the foot restraints, Buzz.

Aldrin They are great. I don't see any problem in positioning my body at all.

Lovell We are going to the checklist now.

Aldrin Yes, I can see it.

Lovell Any time you want to you can start the...

Aldrin Well, you're the doctor, you can...

Lovell Well, it doesn't make any difference

HOU Three minutes to sunset.

Lovell Ok, thank you.

HOU Gemini 12, Houston, one minute to Kano LOS, you'll be at Tananarive in 9 minutes.

Lovell Ok, fine.

KNO Kano has LOS

Gemini Control Houston, 43 hours, 42 minutes into the mission of Gemini 12 now. You have just heard the conversation during this

long pass, and the umbilical EVA is moving along very well at this time, somewhat ahead of our normal time lines, as a matter of fact. The pilot, Buzz Aldrin, was scheduled to be back to the adapter work station sometime prior to sunset, he did better than that. The broken linkage referred to in the conversation - this is a bracket for the...is concerned with a bracket for the 16mm camera located back in the adapter work station. Heart rates are holding extremely well, at Canary LOS Pilot Buzz Aldrin was logged at 102 heart rate and 16 respiration rate - well within what would be expected - what had been anticipated. Command Pilot Jim Lovell is logging 96 beats at the present time. Back in the work station,the adapter work station, Aldrin performs a variety of tasks - there's about 17 numbered tasks and he's back there primarily to evaluate his restraints, the foot restraints and waist tethers. As was indicated in the conversation he's tried the foot restraints already, he indicated that it was close to the same amount, perhaps a bit more difficult than what he had experienced during underwater simulations prior to the mission. The tasks that he will be involved with also are of a variety that may be needed in future EVA missions. Aldrin will work with a torque wrench back at the adapter work station and he will measure in inch pounds the amount of torque applied to a couple of bolt heads back there and he will remove another bolt similar to those that might be expected in a Saturn S4-B dome and he will put it back into another hole. He will do this with and without foot restraints. Here he will try to cut cables with debris cutters and also we would like to get a comparison between one and two-handed tasks back there.

Aldrin will have a connector that can be plugged in with one hand and two with two hands. There are a couple of rings and a couple of hooks. Cernan had some problems with this. He was without benefit of the foot restraints, however. In the case of Aldrin, he will try and link these. Up at the top, he will have three different widths of velcro strips and he will see how easy it is to pull these. An interesting aspect - the tasks that will require a continuous or semi-continuous effort like the connectors and the bolt tasks are down low on the panel and these tasks at the top are the kind where you make one reach and they are over. With the space suit on, the helmet on, and the chest pack on, Aldrin in a normal position will be crouched over and the placement of these tasks is to avoid working against the suit. In his set of circumstances at the present time, he will have better access to the lower part of this work panel. At 43 hours, 46 minutes, this is Gemini Control Houston.

END OF TAPE

Gemini Control, Houston, 43 hours, 49 minutes now into the flight of Gemini 12. We are at acquisition with Tananarive. We don't know if there will be any conversation during this pass because it is a short pass, and we are standing by now.

S/C	(First part garbled)
Lovell	Why don't you rest here for awhile.
CAP COM	Gemini 12, Houston Cap Com through Tananarive and standing by.
Lovell	OK, Houston. We will rest a moment.
CAP COM	Roger
Aldrin	The right glove at the base of the thumb is beginning to have a little bit of a throb. (Garbled)
CAP COM	Gemini 12, Houston Cap Com. One minute to LOS. Carnarvon in 10 minutes.
Lovell	OK. What is the status of your visor? Is it fogged or anything?
Aldrin	No. It's clear as a bell.
Lovell	The face cover? Is it fogging at all?
Aldrin	Negative
Lovell	Are you perspiring at all?
Aldrin	Negative
Lovell	No perspiring.
Aldrin	I'm bending back now, looking up at the stars.
TAN	Tananarive LOS.

Gemini Control Houston, 43 hours, 53 minutes now. We've just had loss of signal with Tananarive tracking station. Our next station to acquire will be Carnarvon, this is at 44 hours, 2 minutes into the mission. About nine minutes from this time. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 44 hours, one minute into the flight now. Before we acquire at Carnarvon we thought we would background you on these two pennants that were referred to in the air/ground conversation. One is..uh..both pennants I should say, are white with dark blue borders, retangular in shape and/one the that was first referred to it says "November 11, Vet's Day" and on the reverse side of this pennant is an American flag. The second flag, also made out of the same material, said "Go Army, Beat Navy" this no doubt refers back to the flight of Gemini 6 during the 7/6 mission and the sign that Command Pilot Schirra which said "Beat Army". Both were rolled up in portable handhols and, the first pennant, by the way, would have gone on November 11, for the umbilical EVA, is our initial flight schedule had held. We should also indicate that both of these pennants are made out of flight qualified nylon. We have acquired now at Carnarvon and we'll pick up the conversation.

Aldrin ...also near the raised bush where the bolt was attached into

Lovell Ok. Oh I see, I see it. You were able to get the bolt in, huh?

Aldrin Right. Now, a loose bolt, with a washer is being inserted manually on raised tether, the bottom bolt, and its a delicate operation.

Lovell Take it easy.

Aldrin The bolt is just fitting right straight into the hole now, zero g is holding it here, its not engaged.

Lovell Oh?

CRN Gemini 12,Carnarvon standing by.

Lovell Roger, Carnarvon, I'm going to go to manual on the O_2 and pump up the oxygen.

CRN Ok, we were just going to suggest that.

Aldrin Too bad the camera wasn't working, that would have been a beautiful picture.

HOU FLT Carnarvon send us another main when he turns the heater on please.

CRN Roger

Aldrin The picture I was referring to was that I fumbled the bolt and the washer and they both went drifting in underneath my helmet, I pushed them forward, then moved myself away from them for a moment and caught both of them, and put them together and they are now going in manually and I'll give it a couple of more turns and put it in the rest of the way.

Lovell Oh I see. You are playing a little orbital mechanics to retain proficiency.

Aldrin Yeah, I had to do a little rendezvous there.

Lovell I see, ok.

Aldrin Yeah, this nut and bolt work station is way too close to the tethers...the right one especially.

Lovell ...the tethers are too close to the work stations...right?

Aldrin Right.

Aldrin Ok, looks in good shape, I'm using the wrench here and tightening up on her. Then there's the same problem overcoming the rachet door, in other words, you unwind just about what comes to what you wind; there, its going in now.

Lovell Ok. Let me know when you have the bolt tightened down.

HOU FLT Carnarvon from flight.

CRN Go ahead.

HOU FLT Does he have that heater on? Your main doesn't show. He does?? Ok. Give us another main, please.

CRN Ok.

Aldrin Ok, it's tight.

Lovell Ok, it says here we to evaluate the ...reflex, and we can rest a few minutes, do you want to take a look at that?

Aldrin Ok, let me stow the...

ALDRIN Wrench is stowed. Okay we can look at the hook and ring connections.

ALDRIN Right. Got out the big ring. The Velcro didn't want to come undone on it. Main ring is out and and the big hook and the two are hooked together.

LOVELL Okay, big ring is out and both hooks are hooked together. Okay, let's take a look the small one.

ALDRIN All right. The small ring is out and it is more of an effort to get it. The proper position in your hand. I am going to hook it in the big ring. Into the big hook. The big ring is now engaged into the ring. The hook is engaged into the big ring, and the little ring.

LOVELL Okay, now take a banana pillow and rest for a while.

ALDRIN You want the little ring?

LOVELL I thought you had evaluated the little ring.

ALDRIN The little hook goes ...

LOVELL Okay.

CRO Gemini 12, Carnarvon. We have 1 minute before LOS. Just a reminder on your manual heater.

S/C Roger, Carnarvon. I am just about to switch manual right now.

CRO Okay.

S/C ...700..

CRO Copy that.

LOVELL Okay, Buzz, while you are resting here...

ALDRIN No, not right now.

LOVELL ...

ALDRIN Well, ...make one ring evaluation of the little ring. Ready...little hook is open. Ring...

ALDRIN ..two are back together. I am going to stow the little ring where it belongs. The hook is stowed, but the little ring isn't. Okay, everything is back where it was.

LOVELL Okay, take a banana pill and rest for a few minutes.

CRO Carnarvon has had LOS both vehicles. All systems go at LOS.

HOU Roger, Carnarvon.

Gemini Control Houston 44 hours 11 minutes into the flight of Gemini 12. Buzz Aldrin at this time is still back in the adapter workstation area performing the various tasks that are involved back there. His heart rates are holding very well indeed, ranging from a low of 88 up to 120. No higher than 120 or 22 during this particular time frame. The foots restraints back there by the way, bring to mind an old song, the old song being "Oh, those golden slippers". The foot restraints are gold, as a matter of fact, painted gold for thermal reflection and this Sunday morning Buzz Aldrin has become the first man to try on those golden slippers in space. At this point they appear to have worked very well indeed. The next station to acquire will be Canton at 44 hours 22 minutes into the flight, some 10 minutes and this is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 44 hours, 22 minutes now into the flight of Gemini 12. We're approaching Canton tracking station in the Pacific at this time and we should acquire Canton or Canton should acquire the spacecraft momentarily. And we're standing by now -- standing by for any conversation which will transpire on this pass over the Pacific.

HOU Canton, go remote.

ALDRIN All right. It's in and let me make sure its back in the ... (garbled).

LOVELL On 250 degrees per second.

ALDRIN Okay.

LOVELL And its a good guess.

ALDRIN Okay, now let's see. When the ... says no, I turn off the camera and ...(garbled)

LOVELL Find out when it's moving.

ALDRIN It's moving.

HOU Gemini 12, Houston Cap Com through Canton and standing by.

LOVELL Roger, ...(garbled).

ALDRIN I think one way to weigh the tether is the portable handhold ...

LOVELL Yeah it is. How do you like that nose handrail?

ALDRIN Well, it's pretty hard to evaluate.uhtil you see how they are up here. I am backing toward the Agena now. That's the ...(garbled)

LOVELL How far are you from your tether?

ALDRIN Now don't pull me in with it.

LOVELL How about ...

ALDRIN I thought maybe I'd have a look at the right portable handhold.

LOVELL Okay.

ALDRIN I think maybe that'll do. ... is right on the top and it looks to be ...

LOVELL Okay.

ALDRIN Think maybe I should ... it off? And it's into the side, ...

LOVELL Okay, sounds good.

ALDRIN I need just a little bit of body torque here. The left waist tether is in place with the portable handhold.

LOVELL Okay.

ALDRIN The left waist tether is off of the portable handhold. And it's into the midfit. The ... pin is out.

LOVELL Okay.

ALDRIN And that one is in. ... out slowly. It's back.

LOVELL Take it easy.

ALDRIN ... centered in now. I'm not going to lock it. There it is. Okay, that's done now. Let me do experiment S-10 on the way in. We can get it out of the way. Okay, time for a little breather here.

LOVELL Okay, rest for two minutes. I'll talk to the ground.

ALDRIN ... what a terrible blow. ...(garbled) (Garbled)

LOVELL Stand by.

ALDRIN Lovell.

LOVELL Yes, Buzz.

ALDRIN I guess we'd better check that retro camera and make sure it's working.

LOVELL As soon as I get the lights on. Cut your ... down.

ALDRIN Okay, I'll turn off both cameras in a second.

LOVELL I ...(garbled) goes.

ALDRIN Did you say ...(garbled)?

LOVELL Better not.

ALDRIN No, it says the same thing.

LOVELL Wait a second ... I'll get it for you.

HOU One minute to LOS. 10 minutes to Guaymas.

LOVELL Okay. Hold on a second.

Buzz.

ALDRIN Yes?

LOVELL Okay, let's do a little checking first.

ALDRIN I have one ... remaining here. Let me see if I can get it here. The handhold -- the spacecraft ...

CTN Canton has LOS.

Canton has LOS.

Gemini Control Houston, 44 hours, 31 minutes now into the flight of Gemini 12. Pilot Buzz Aldrin is at the Agena workstation now tethered with his head facing the command pilot's side of the spacecraft, the left side of the spacecraft. At the Agena workstation, he has what is called an Apollo torque wrench to work with. This wrench can be set for torque settings from 50 to 200 inch pounds and if he breaks out the wrench at a given value, he moves the torque value up a notch. He also works with a couple of connectors up there. One which would approximate an electrical connector, one a gas connector. These are at this station. Our next station to acquire, next tracking station to acquire is Guaymas and this is at 44 hours, 40 minutes, 4 seconds, or some 8 minutes from now. This is Gemini Control, Houston.

END OF TAPE

Gemini Control, Houston, 44 hours, 40 minutes now into the flight of Gemini 12. We are standing by now for acquisition at Guaymas. We expect conversation at any time.

Aldrin — Bring up on it and pushing away. And I am free with no ace cutters.

Lovell — OK. You are free with no ace cutters. Righto.

Aldrin — I am going to start cleaning up shop here. Dispensing with waist tether, portable hand holds.

Lovell — OK. Better get rid of everything.

Aldrin — I trust you are recording all of this.

Lovell — Boy, you are a litterbug, aren't you?

Aldrin — I had a backup Veteran space sign here.

Lovell — There it goes.

Aldrin — Alright the work station is clear and no tethers. Lets take a look at .... preparation.

Lovell — Pardon

Aldrin — No tethers.

CAP COM — Gemini 12, Houston Cap Com standing by.

Lovell — Roger, Houston.

Aldrin — Disconnect with no tethers and unhook and hook back up.....by the electrical connectors... with

n — no waist tether, unhook... and hook back up.

Lovell — OK

Aldrin — I think we ought to make one last check of the S-10.

Lovell — OK

Aldrin — I will tell you what this part of the Agena looks like.

Lovell — Hey Buzz, you never did wipe off my window, did you?

Aldrin — Oh, ok. Give me a half a minute.

Lovell — Hey, would you change the oil too?

Aldrin — Change your oil? Yeah, alright. I can see the tether looks hooked up and the spacer is agape.

Lovell — Ought to be some great pictures here.

Aldrin — I'll try it.

Lovell — OK, running out of voice tape, Buzz.

Aldrin — Let me take one last look at the S-10.

Lovell — You go ahead and look and I will change voice tapes.

CAP COM — Gemini 12, Houston Cap Com. You needn't answer while you are changing the voice tape. I would like to comment that if you are willing, we would like to run a quick check of your OAMS thrusters by having Buzz observe a thruster firing while he is standing in the hatch when you have a chance. We want all the gear inside and just prior to ingress when you are removing the EVA camera. You might think about this and give us a call when you have a chance.

Lovell — OK. That sounds pretty good. We will do that.

CAP COM — OK. We have a procedure here for you when you get squared away. We will talk you through it.

Aldrin — I have got to wipe his window off first here. Helping any?

Lovell — No

Aldrin — No? Its slippery if anything is on the outside.

Aldrin Wait a minute, I think it is looking out now. The film is coming off. See any improvement?

Lovell Yeah, it looks good.

Aldrin OK, where is the bad spot?

Lovell Right over here in the corner there.

Aldrin Right here?

Lovell I know where you can get a job, Buzz.

Aldrin Huh?

Lovell I said that I know where you can get a job.

Aldrin Know where I can get a job, huh.

Lovell I am still trying to get this other tape back in the (garbled)

Aldrin I can see from the outside that you have quite a film on the inside.

Lovell Yeah.

Houston Texas remote, Guaymas local. Texas remote.

Aldrin Can you hold onto this (garbled)

Lovell No. I have got to secure this tape which is quite a job. There we go, there we are.

Aldrin I'm sorry that we didn't get a picture of that (garbled)

Lovell Do you have anything in the way of (garbled)

Aldrin Yeah

(Garbled)

Lovell OK. Come on back.

Aldrin — Alright. Lets bring in the umbilical. I think that.. yeah, I have the end here.

Lovell — Ok

Aldrin — Yeah, it is just about wrapped around me here.

Lovell — Houston.

CAP COM — Go ahead, 12, copy.

Lovell — OK, we are getting prepared now to bring in the umbilical here.

CAP COM — Roger, let me know when you are ready to try this check of your thruster.

Lovell — OK.

Aldrin — We have got just about all of the umbilical that is coming in before I hand in the L O S S and I am standing in the hatch.

Lovell — OK is the umbilical clear and everything, Buzz?

Aldrin — Yeah, pull in just a little.

Lovell — OK. What about the retro camera?

Aldrin — OK a little more

Lovell — Get the retro camera. Watch your feet. Watch your feet.

Aldrin — OK

Lovell — Put your feet down further. Thats it. Keep your feet down, Buzz. Camera stowed.

Aldrin — Yeah

Lovell — OK Houston, go ahead. What do you want us to do?

CAP COM — OK, Gemini 12. Confirm that the adapter is clear.

Aldrin — The adapter is clear.

CAP COM — OK, Jim if you can, turn on your two attitude circuit breakers. The ones that you turned off previously.

Lovell — OK, will do. They are on.

CAP COM — Ok, OAMS control power on and direct.

Lovell — Have OAMS and direct.

CAP COM — Ok, we would like Buzz to observe the upper right side of the spacecraft on his side. That is thruster no. 4 area while you give a very short blip, yaw right.

Lovell — Roger, short yaw right. Buzz,you all set?

Aldrin — OK. I can see something coming out there. It looks like thruster is coming up. How about hitting another one for comparison, the one that is on the same quadrant quadrant there, is that no. 3.

Lovell — You want no. 3. That is down below.

CAP COM — OK, hit pitch down while you are at it.

Aldrin — The comparison on the one that is in the same quartrent there will be firing up.

CAP COM — Roger, pitch down. Pitch up

Lovell — Pitch up.

Aldrin — Alright now in comparison, that was a lot cleaner flame.

CAP COM — Roger, was the first a flame or a fluid.

Aldrin — There wasn't a flame barely on either of them that I could see. It was only about 30 degrees away.

CAP COM — Roger, why don't you try one more short yaw before you come in.

Aldrin — Very good idea. Try that once more.

Lovell — Yaw right

Aldrin — Alright, there is a definite difference. It looks like that there is a lot of compartment material coming out.

CAP COM — Roger, copy.

Aldrin — Want to try another one, that doesn't seems to be working.

Lovell — (Garbled)

CAP COM — Negative, you can't see it

Lovell — At thrust, there are pieces of slight, like after the urine dump, that occasionally dome by out in the direction of that thruster that was inoperative.

CAP COM — Roger, copy. Go ahead and turn your OAMS control power off and start your ingress.

Aldrin — Alright, I guess.. how about the handrail?

Lovell — OK

Aldrin — We missed getting a picture of that one.

Lovell — Yeah, ok.

END OF TAPE

LOVELL Okay.

ALDRIN We missed getting the picture out.

LOVELL Yeh, okay.

ALDRIN Do you have anything going?

LOVELL Huh?

ALDRIN Do you have to do anything to get a picture?

LOVELL Well, I don't know what to say, Buzz. Go ahead and throw it away.

LOVELL Pull it down to the left.

ALDRIN I'll slow it down so you can see it.

LOVELL Okay.

ALDRIN Okay?

LOVELL There she goes.

ALDRIN Flying low...

LOVELL The highest - the world's highest javelin thrower.

ALDRIN Better....get back. It's lonely.

Let's go end over end now. Okay, let's go back in here..... hatch holding device.

LOVELL Yes, try and get this camera down on top of the camera box.

HOU Gemini 12, Houston Cap Com. Confirm OAMS control power off.

LOVELL Roger, OAMS is off.

HOU Good.

LOVELL All right, looks like the .....

ALDRIN Okay, looks like.... filled with debris.

LOVELL There are flecks of dust in it but it looks..

ALDRIN Okay?

LOVELL Roger..... Deploy the hatch holding device.

HOU Gemini 12, Houston. If you can turn your manual O_2 heater.

S/C All right.

LOVELL Okay.

ALDRIN You ready for the (interrupted)

LOVELL Check to see if the hatch pawls are in the lock position.

ALDRIN Wait a minute, I have one more thing to ....

LOVELL Okay.

ALDRIN ..... was the last thing you said?

LOVELL Hatch pawls in lock position.

ALDRIN Yes. They're in lock.

LOVELL Hatch holding device teeth are opened up, right?

ALDRIN Where am I right now? .....

LOVELL Here you go. Okay, clear hoses. Okay, ingress into the cabin, release restraints and hand me the ELSS.

ALDRIN All right.

LOVELL And can you, what?

ALDRIN I want to tell you that the ..... moved away

from the ... area.

LOVELL — Okay.

ALDRIN — ... my restraints are coming off.

LOVELL — Okay.....here's the seat, Buzz. Sit down.

That's it. Okay, hand me that monster.

ALDRIN — I'll never forgive you if you lose that.

LOVELL — What this...(garbled)

Oh, I'm going to lose that one.

ALDRIN — All right, lowering restraints through loops.

Why ever do you want to pick the top one first?

All right, that looks good. Just has a slight

twist on it. If you can turn that toward you.

Turn it toward you this way. Okay, that's right.

Take the ELSS and lower it down.

ALDRIN — All right, getting in position. Let me check the

.... hatch .... camera box.

LOVELL — Okay. All set? Okay.... make sure ....

ALDRIN — All right, the footwell looks nice and clean.

Put .... on to the right-hand.

LOVELL — Take the top off. I can't hold this whole thing.

Okay.

ALDRIN — Pilot's ... check.

HOU — Everything looking good, Gemini 12.

S/C — Okay, we're down to the last latch.

S/C ..... tail off..... still warm in here.

HOU About 19 minutes to sunset.

S/C garbled

HOU Take your time.

S/C Okay, we'll pressurize with the ELSS shortly.

LOVELL Okay, that checked out.

ALDRIN GARBLED

ALDRIN Would you believe both the penlights came back with me?

ALDRIN Never thought they'd make it.
Now all that remains is to see that S-10....
with the tether comes loose.

LOVELL You let the ELSS .... didn't you, Buzz?

ALDRIN Yeh, number 9.

LOVELL Bypass normal.

HOU Okay.

LOVELL Oh, can you get this .... off?

ALDRIN We're going to have to elbow to elbow in it.
Okay, I think it's in the off position.

HOU Gemini 12, Houston Cap Com. One minute to LOS.
New EVA record. Beautiful job.

ALDRIN Thank you.

LOVELL Okay, I'm going to turn off the repress now.
Can you get the package in now?

ALDRIN What, the ELSS?

LOVELL Can you ..... up?

ALDRIN Might as well. Okay, ...

LOVELL Okay, good. Okay, repress coming off now.

Stand by. Take it away.

ALDRIN Cabin's to about 3 quarters of a pound.....

30 seconds. Eyeballs.....

LOVELL Okay, pressure reads normal.

Gemini Control Houston, we're out of range of Bermuda now. The hatch is closed on the Gemini 12 spacecraft and our preliminary data indicates we've had a highly successful umbilical EVA today. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston, 45 hours 2 minutes into the mission now. The Gemini 12 Spacecraft is now over Canary and we'll standby for any conversation with the crew.

SC Feels like it might be ....but..

SC That could be perspiration.

Carrying to much water.

ALDRIN Perspiration.

HOU Canary Cap Com, Houston Flight, I didn't copy his last did you?

CYI Okay, standby

Cabin pressure is 2.(garbled) at this point.

HOU 2 point what?

CYI 87.

HOU Roger.

CYI Gemini 12, Canary Cap Com. How is the repress coming?

LOVELL Roger, pretty good we're at .....

ALDRIN About 3.(garbled) psi.

CYI Roger copy.

We're reading same on the ground at this time.

SC Ready for an exercise.

Command Pilot just volunteered.

LOVELL What's the pressure now?

ALDRIN 2.6

HOU Canary Cap Com Houston Flight. What is his cabin pressure now?

CYI Standby one. Getting a cam on it right now.

HOU	Okay.
CYI	3.68
HOU	3.68; thank you.
SC	(garbled)
SC	What's the pressure.
SC	Coming up to 4.
SC	Pressure is now 3.8.
SC	(garbled)
SC	Okay, I have it.
CYI	Canary, 12
CYI	Go ahead 12.
CYI	Gemini 12, Canary go ahead
CYI	Gemini 12, Canary Cap Com go ahead.
HOU	What's his cabin pressure Canary?
SC	....all right we're down to about 1000 pounds now.
CYI	4.97
HOU	Roger 4.97
S/C	It's coming up a half a pound
CYI	Now 5.29.
HOU	Say again.
CYI	5.29
HOU	Copy.
S/C	.... see above ....
CYI	Now 5.61
HOU	Roger.